DEC 26 1919

Registered at the G.P.O., Sydney, for Transmission by Post as a Newspaper. Published Weekly.

THE

MEDICAL JOURNAL OF AUSTRALIA

(With which "The Australasian Medical Gazette," and "The Australian Medical Journal" are incorporated.)

The Journal of the Australian Branches of the British Medical Association

VOL. II.—6TH YEAR—NO. 20. SYDNEY: SATURDAY, NOVEMBER 15, 1919. PRICE 6D.

RAW CATGUT

DE-FATTED

We have just landed good supplies of the best quality Catgut of **English** manufacture in the following sizes:

Nos. 000, 00, 0, 1, 2, 3, 4, 5, 6

In Packets containing 12 strands each 10ft. long.

ALLEN & HANBURYS Ltd.

SURGICAL INSTRUMENT DEPARTMENT

B.M.A. BUILDING : ELIZABETH STREET, SYDNEY

The British Ministry of Food

Purchased During 1917-18

OVER 4,000 TONS (Ten Million Pounds Weight)

—OF—

GLAXO

These orders were only placed after the most searching investigation by the Local Government Board as to its nutritive value and suitability for Infant feeding.

Glaxo welcomed this thorough official investigation as all clinical evidence and laboratory research have vindicated the most sanguine hopes of Glaxo.

Glaxo is prepared simply by the addition of hot water.

Glaxo

THE FOOD THAT BUILDS BONNIE BABIES

Samples, together with Medical and Analytical reports, sent free on application to—

GLAXO .... 79-81 Pitt Street, Sydney
GLAXO ..... Spencer Street, Melbourne
GLAXO ..... 20 Queen Street, Perth, W.A.
GLAXO ..... McHenry Street, Adelaide
GLAXO ..... Queen Street, Brisbane
GLAXO ..... Palmerston North, New Zealand

No. 21

Mist. Bismuthi Oxybrom. Co.

GASTRIC SEDATIVE. (1 to 2 drams well diluted)

M GASTRIC SEDATIVE B O

Will be found of great service in Nervous Dyspepsia, Gastritis, Summer Diarrhœa, and all irritative conditions of the alimentary tract.

M.B.O. is one of the few remedies found to moderate the pain of cancer of the stomach.

It may be prescribed with **Glycerin Pepsin**, or if an **alkaline mixture** be preferred, with **milk of magnesia.**

Sample posted free upon application.

PRICE . . . . . 6/- PER LB

THE AUSTRALIAN DRUG CO. Ltd.

19-21 O'Connell Street, Sydney

THE MEDICAL JOURNAL OF AUSTRALIA.

VOL. II.—6TH YEAR. SYDNEY: SATURDAY, NOVEMBER 15, 1919. No. 20.

ON "CARDIAC" MURMURS.

By **J. Macdonald Gill, M.D. (Lond.),**
Honorary Physician, Sydney Hospital; Honorary Physician, Royal Alexandra Hospital for Children, Camperdown; Lecturer on Clinical Medicine, University of Sydney.

In 1909 and 1911 I published two papers on the mode of origin of heart murmurs. The suggestion there made was that murmurs were due to vibrations of muscular origin; that these vibrations occurred usually at the rate of 8 per second, but sometimes rising to 10 or 12; that they were best recorded in cardiograms from the anterior wall of the chest, over the situation of the right ventricle, near the left border of the sternum, preferably as a rule in the third left interspace; that they could be obtained in a great variety of cases, in which murmurs were apt to occur, *e.g.*, chronic Bright's disease, chlorosis, besides various forms of heart disease; and, finally, that these vibrations evidently arose in the right auricle. The suggestion was then made that these movements originated in the *sinus venosus*, the remains of which are incorporated in the right auricle. A vibration of this kind is obviously capable of producing murmurs. The idea simply put is that the murmurs one hears about the heart are secondary and the thrills one so often feels are primary, whereas the current view is that the opposite is the case.

It is first of all necessary to insist upon the defects of the usual explanation. The "fluid vein" theory supposes that sounds are produced in tubes by fluid passing through a narrow channel into a wider one, as, for example, the pre-systolic murmur in mitral stenosis. To show the unsatisfactory nature of this explanation, it is sufficient to mention the fact that if blood passes out of the left ventricle in systole back through the mitral orifice, the systolic murmur should be heard over the left auricle, that is over the back of the chest and not at the apex. In fact, at the present time it is almost universally held that a systolic murmur at the apex can only be due to regurgitation of blood through the mitral orifice and to no other cause. These murmurs are heard under a great variety of conditions. Often it is quite clear that the heart is perfectly normal in every way. Very often, on the other hand, there is very extensive disease of the valves without any murmur. To explain the apical systolic murmur in healthy subjects, or in conditions like chlorosis, where the heart was healthy, but the quality of the blood altered, the idea of a localized dilatation of the heart was introduced. It was supposed that the muscular ring around the mitral orifice had given way, whereas the rest of the musculature of the left ventricle contracted in a normal fashion. This is a mere surmise. It is almost inconceivable that such should happen. There is no special ring of muscular tissue around the mitral orifice and the ventricular contraction is not particularly powerful in these cases. This idea was evidently introduced to fit in with the "fluid vein" theory of the production of murmurs. Of course, it is quite clear that the main body of the left ventricle is not dilated, clinical evidence and X-ray evidence being both against it.

We will now take the murmurs heard in acute rheumatism in childhood.

The commonest murmur is a systolic at the apex. The next most common is a "to and fro." As a rule the more severe cases have louder murmurs. As a result of the rheumatic infection the heart becomes hypertrophied and beats much more vigorously than normal. It is also not uncommon in the early stages of first attacks of rheumatism to hear what may be called a "*foo-ta-foo*" murmur; that is a mid-diastolic murmur in addition to a systolic. In this case the diastolic murmur is usually not loud and is *diminuendo*, terminating before the following first sound. This diastolic murmur is very similar to that often heard in the adult and supposed to be due to mitral stenosis. The explanation usually given is that the murmur is produced by the blood rushing through the narrowed mitral orifice during the relaxation of the ventricle. Such an explanation obviously cannot apply in first attacks of rheumatism. Murmurs are often heard over the veins of the neck in rheumatism and are sometimes even louder than those heard over the heart. These murmurs are usually systolic; sometimes a thrill is palpable. Now the valvular changes found in a first or early attack of acute rheumatism in a child are generally quite insignificant. The valves may even be quite normal. As a rule the valves are not incompetent; they merely show some heading at or near their margins. There is no deformity. The idea of defect of the mitral orifice through relaxation of the muscular ring is generally used to explain these murmurs. A little thought shows the absurdity of this explanation. It is necessary to suppose that the muscular ring relaxes during contraction of the main body of the ventricle; and yet contracts during relaxation of the ventricle! It is very clear that this conception was merely introduced to fit the murmurs to the "fluid vein" theory.

We will next take the murmurs heard in chlorosis. The most typical is the venous hum heard over the veins in the neck. It is a rough, harsh, loud, continuous murmur, often accompanied by a thrill, best heard over the right internal jugular vein. It is, of course, often accompanied by systolic murmurs in the pulmonary area and at the apex. The usual explanation given of this is that the internal jugular vein remains patent when passing through the deep cervical fascia, but is collapsed and empty above and below this opening. This is clearly inadequate, as the vein is more often distended than not in the neck and the flow of blood is not continuous as the records of venous pulsation show. I think that there are two factors that go to make this murmur. The first is the alteration in the quality of the blood. In anæmia the blood is more watery, is less viscid and more readily transmits delicate vibrations. The second is

the tendency to plethora in chlorosis and other anæmias. No methed for readily determining the total volume of the blood is in ordinary clinical use, but the observations which have been made tend to show that the volume of blood is increased greatly in some cases of chlorosis, pernicious anæmia and heart disease. This conclusion certainly tallies with probabilities, *e.g.*, in chlorosis, the plumpness, the tendency to œdema and the full veins in the neck all point in the same direction. These vibrations chiefly arise at the junction of the superior *vena cava* and the right auricle; the two factors mentioned above help to transmit them to the internal jugular vein in the neck. I imagine that in the normal subject the superior *vena cava* is too slack to transmit them to the neck. That they are readily lost in the veins is shown by the fact that, even when they are very evident in the right internal jugular vein, they can seldom be heard or felt in the left. Murmurs, often loud, are also heard in the neck in exophthalmic goître. They are usually systolic, often accompanied by a thrill and are evidently venous, as they are easily obliterated by pressure. The essential factor is, I think, the great vigour of the circulation, dependent upon the greater energy of the heart beat. Continuous venous murmurs are heard in arterio-venous aneurysm. The murmurs in these cases have usually a systolic accentuation and are accompanied by a thrill. A similar murmur is heard when an aortic aneurysm ruptures into the superior *vena cava*, and in pulsating exophthalmos, when the internal carotid communicates with the cavernous sinus, as a result of a fracture of the skull or similar injury. In these cases, on applying the stethoscope to the eye ball, a loud continuous murmur is heard with a systolic accentuation and thrill. In some cases of congenital heart disease, with persistence of the *ductus arteriosus*, a similar murmur is heard in a limited area below the left clavicle. In a recent case of this kind at the Children's Hospital, in a small child, about 6 years of age, the *post mortem* examination showed a small aneurysm, about the size of a walnut, occupying the position of the *ductus*, communicating by a small opening with the aorta above and the pulmonary artery below. I suspect that a similar condition is present whenever this murmur is heard, as in cases of congenital heart disease in infants and, as a rule, no such murmur is audible, although patency of the *ductus arteriosus* is one of the commonest conditions present. I imagine that in this case the small cavity of the aneurysm acted as a resonator, the small vibrations not being capable of producing a sound unless reinforced. Other murmurs in congenital heart disease are of great interest in this connexion. Patency of the *foramen ovale* is seldom of importance pathologically; but a case I saw recorded recently had a systolic murmur! In defects of the inter-ventricular septum, the systolic murmur usually present, is generally said to be due to blood passing from one ventricle to the other. This is highly improbable, as the right ventricle usually becomes hypertrophied so as to become the same size and thickness as the left. As the two ventricles contract at the same time, the contractions of the two chambers commencing and ending simultaneously, it would be necessary to suppose that the right ventricle dilated and contracted at the same time! It would also be necessary to assume that the right ventricle drove more blood into the pulmonary circulation than the left into the systemic, as obviously the left ventricle would have to start its contraction with more blood than the right, because, if not, after a few beats, all the blood of the body would be accumulated in the pulmonary circulation. I have put down these conclusions, which are obvious, to show how unwise it is to accept current notions without a little reflection.

In chronic Bright's disease, when the heart is enlarged, it is common to get murmurs. These are usually systolic and are heard best at the apex. At the same time, the "s" vibrations are very easily got. Other murmurs are sometimes got, as in the following case. A young man, a little over 20 years of age, was admitted to hospital with advanced Bright's disease. The heart was a good deal enlarged, but there were no murmurs. There was also well-marked albuminuria, retinitis and other grave signs. While he was under observation, he suddenly developed a double murmur in the precordial region. This murmur very closely resembled the double sound of a pericardial rub; but it was very evident that there was no pericarditis, as there were no subjective symptoms and the temperature was normal. The murmur was not best heard at the apex, but over the centre of the cardiac area and at the base; it was not heard over the aorta. This murmur arose quite suddenly, a week or two after he had been in hospital. After having been under observation about 6 weeks in hospital, he died. The *post mortem* examination showed the enlarged heart usual in this disease, but no pericarditis and no valvular defect or disease. Such a case as this would be incomprehensible without such an explanation as I have suggested.

The last murmur I shall refer to is the presystolic. So much has been written about this murmur that one rather hesitates to discuss it. Any explanation of its mode of production, however, must explain two things, *viz.*, first, its frequent occurrence in aortic insufficiency (the Austin-Flint murmur), and occasional occurrence in adherent pericardium and chronic Bright's disease. The Austin-Flint murmur may resemble the presystolic murmur of mitral stenosis in every way. In fact, there is no doubt the two murmurs may be precisely similar. A murmur resembling the presystolic murmur very closely is also heard in adherent pericardium. I have notes of such a case in a man of 20 under observation in hospital for several weeks, who developed a typical presystolic murmur while under treatment. A diagnosis of mitral stenosis was made without any hesitation. The *post mortem* examination showed no stenosis of the mitral orifice, but an adherent pericardium with a greatly hypertrophied heart. A presystolic murmur has been noted as occurring in Bright's disease, though I have not come across it myself.

Secondly, there is its occasional occurrence in what is now generally called auricular fibrillation. While it is no doubt generally true that in mitral stenosis, when the irregular rhythm sets in, the presystolic murmur disappears, yet there are exceptions. A case

recorded by me in my previous papers is a striking instance of this. I here submit two curves, one of the

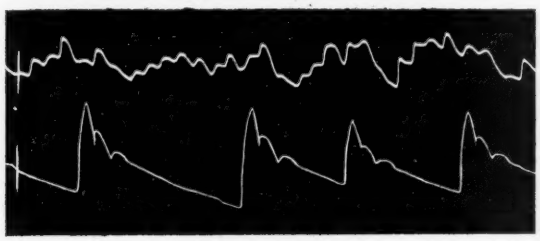


Figure I.
Jugular and radial pulse. Presystolic murmur.

jugular pulse and the other from the apex, where the presystolic murmur was heard. The presystolic

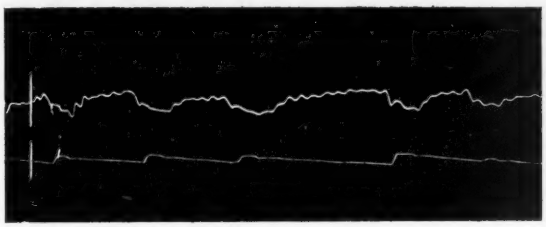


Figure II.
Cardiogram and radial pulse. Presystolic murmur.

murmur was quite typical with final accentuation; it occupied the whole of the diastolic period, commencing at the termination of the first sound and terminating abruptly at the onset of the following first sound. The second sound was inaudible at the apex. The pulse was slow, varying between 60 and 70 per minute. It is clearly evident that the murmur must have frequently lasted a full second in this case. The radial pulse was always irregular, as the short length of tracing shows. The jugular pulse was always of the same type in the numerous tracings I took from him. There was never an "a" wave and the "s" waves were always present. I had this man under constant observation for several years and took numerous tracings from him. The prominence of the "s" waves was remarkable; they were always

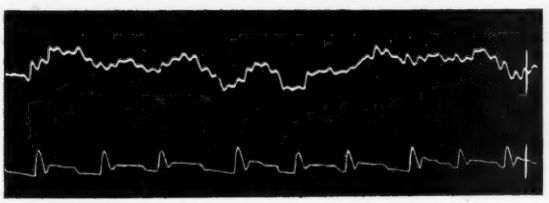


Figure III.
Cardiogram and radial pulse. Apical systolic murmur.

very noticeable. As a rule in similar cases the fairly firm pressure of the receiver in the neck serves to obliterate them; but they are often clearly recognizable. In cardiograms, in suitable cases, they may be easily got. I show a tracing of such a case. This man, 22 years of age, was admitted to the Sydney Hospital with a slight degree of heart failure; there was a loud systolic murmur at the apex. Under the usual treatment with digitalis, etc., rapid improvement took place and the pulse slowed down to a rate of 70 to 80, but it was always irregular as the tracings show. The venous pulse was of the usual type in these cases; there was no "a" wave; the "c" and "v" wave well marked; the "s" waves were also present, but not so evident as in the cardiogram. I also show tracings from two other cases of rheumatic heart disease. The one was the case of a man, 44

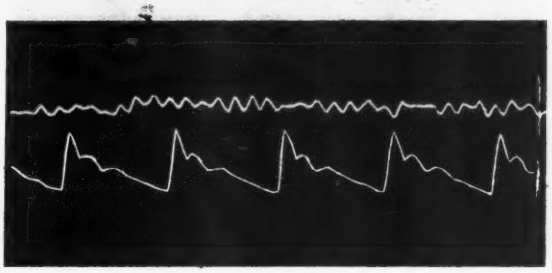


Figure IV.
Cardiogram and radial pulse. Presystolic murmur.

years of age, who had had several attacks of rheumatism and who complained of shortness of breath on exertion. There was a short presystolic murmur at the apex. The radial pulse, as seen from the tracing, is regular. The venous pulse showed the usual *a-c-v* sequence. The other was that of a man of 30 years,

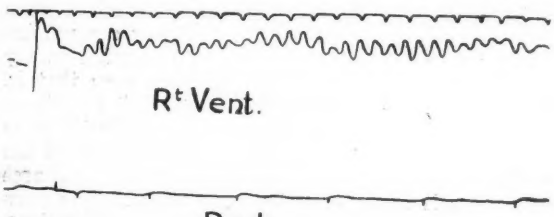


Figure V.
Systolic murmur at apex.

who had had several attacks of rheumatism, but who, when I saw him, had no subjective signs of heart failure. The only murmur at the apex was a loud systolic; there was no presystolic murmur. The "s" waves were very well marked in a cardiogram. The

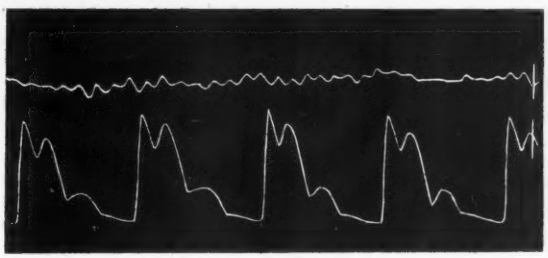


Figure VI.
Cardiogram and radial pulse. Aortic systolic murmur.

venous pulse was of the normal type. The next tracing is from a man of 37 with aortic stenosis;

there was a loud, harsh systolic murmur and thrill in the aortic area, with a faint diastolic. The cardiogram was taken from an area about 2.5 cm. internal to the nipple line. The "s" waves are very well marked in all these.

The curve from a case of Bright's disease is very similar. This man was 40 years old. There was no

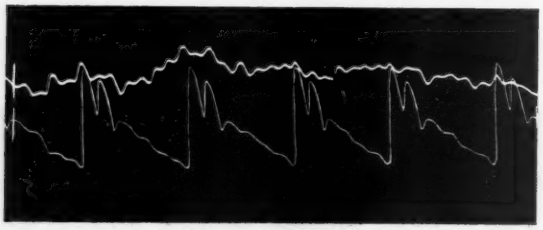


Figure VII.
Cardiogram and radial pulse. Chronic nephritis.

murmur. He died while in hospital of uræmia. The heart was much enlarged, but showed no dilatation or valvular disease.

After what has been said these curves explain themselves. My object is to show that these fibrillary movements can be recorded in all sorts of cases in which murmurs are likely to be present. Murmurs are sometimes present, sometimes absent; often, as in the presystolic murmur, they require to be brought out by exertion.

The mode of genesis of the presystolic murmur requires special discussion. In the first place, as explained above, it is not necessarily dependent upon mitral stenosis. Therefore the ordinary explanation is inadequate. The explanation I suggested in my previous papers is, I believe, the true one; that is, the fibrillary movements arise in the left auricle as well as the right; that they are not audible till some degree of hypertrophy of the muscular tissue of the auricle has taken place; further, that a proper degree of tension is required in the auricle before the muscular movements can produce sonorous vibrations. The murmur disappears usually when the proper contraction of the auricle ceases, owing to the muscular wall being too flaccid to vibrate properly. The murmur, being generated in the auricle, is transmitted to the apex by the blood stream; the contraction of the ventricle immediately arrests it. I imagine that murmurs are mostly systolic because, as the heart contracts, the apex impinges against the chest wall and any vibrations generated in the heart muscle are thus more readily transmitted to the chest wall. The diastolic portion of a "to and fro" murmur at the apex is simply due to the withdrawal of the ventricle from the chest wall, producing a different kind of sound. The double murmur heard over the aortic orifice and supposed to mean aortic insufficiency, means merely a dilated aorta. The frequency with which murmurs are heard in the pulmonary area is due to the location in that area of the infundibulum of the right ventricle, which is the part of the right ventricle in the closest relation to the chest wall.

The idea that the *sinus venosus* is present functionally, but not anatomically is not altogether fanciful. It is absolutely impossible to understand the action of the heart without studying its development. Modern research has clearly shown that the normal contraction of the two ventricles commences at their auricular junction, travels thence to the apex and then back again to the arterial exit. The direction of the contraction wave depends upon the fact that the heart was originally a straight tube, but later bent back in the form of a *v*. It is also a fact that the infundibulum of the right ventricle is the homologue of the *bulbus arteriosus* of the primitive heart, being separated from the main body of the right ventricle by the right branch of the auriculo-ventricular bundle. The explanation of the "c" and "v" waves of the venous pulse is now obvious. The "c" wave is dependent upon the contraction of the first portion of the right ventricle; it is clearly independent of the carotid pulse. Anyone who has taken many tracings of the jugular pulse cannot but be of that opinion, for the "c" wave is often quite prominent when the radial is small. Again, the pulsation may be seen to be entirely limited to the jugular bulb. To obtain a record of the carotid wave, the receiver must be placed below the angle of the jaw, high up in the neck. Further, records taken with a more rapidly moving apparatus than is convenient for ordinary clinical use, show clearly that the "c" wave does not coincide in time with the carotid. Further, it is said that ligature of the carotid does not abolish it. Physiological records since the time of Marey have shown that the three positive waves (*a*, *c* and *v*) in the venous pulse correspond to three positive waves in tracings of intra-auricular pressure. I think that the proof is rendered complete by the electro-cardiogram. It is as clear that the "c" and "v" waves of the venous pulse correspond to the *T* and *R* waves of the electro-cardiogram, as that the *P* wave corresponds to the "a." In the venous pulse we have the three positive waves *a*, *c* and *v* in the electro-cardiogram; we have the three muscular movements represented by the letters "P," "T" and "R."

It is also, I think, necessary to assume that the auriculo-ventricular bundle and branches show these fibrillary movements as well as the "sinus" remains in the auricles. When either auricle or ventricle goes into fibrillation, the more primitive muscular movements persist, while the grosser, later developed, less primitive movements cease. In the condition called auricular flutter, the auricle has taken on the rapid sinus rhythm and is now contracting as fast as is possible. In paroxysmal tachycardia, the ventricle has taken on the sinus rhythm in a similar way, only nothing like as rapid, generally at 150 to 200 per minute. One supposes that in the normal heart there is a block between the sinus and auricle, which is somehow interfered with in auricular flutter and paroxysmal tachycardia.

PRELIMINARY NOTE ON THE APPARENT TRANSMISSION OF LEPROSY TO A MACAQUE MONKEY.

By Burton Bradley, M.B., Ch.M. (Syd.), D.P.H. (Lond.),
Sydney.

The following are notes on the inoculation of a monkey, *Macacus rhesus*, with leprous material and

the subsequent development of nodular granulomatous lesions undertaken when I was Director of the Laboratory of Micro-Biology and Pathology in Brisbane.

On June 20, 1918, material was obtained from a non-ulcerated lesion on the eyebrow of a leper (B.K.). The material consisted of a small portion of the eyebrow of this patient which was accidently detached with a pair of forceps while performing smear preparations. It was examined in the usual manner; that is to say, by smear preparations, stained with carbol fuchsin and decolourization with sulphuric acid, and was found to consist almost entirely of enormous numbers of lepræ bacilli.

Numerous attempts were made on half of this piece of tissue for cultural purposes by Noguchi's and other methods, anaerobic and aerobic, but in all cases contamination occurred and the cultures were discarded. The remainder of the tissue, a piece approximately 2 c.cm., was used for inoculating the monkey in three places. The first inoculation was made by means of a small incision into the muscles of the right buttock. A tiny fragment of the tissue, less than 1 c.cm., was pushed into a little tunnel into the muscle and the surface wound was closed with a single suture. Another piece of similar size was inserted under the skin in the same region about 2.5 cm. distant from the first inoculation. A small wound was then made over the right breast and by means of a blunt dissector a subcutaneous channel was made extending about 3 cm. from the opening and a third small pieces of tissue, the same size as those previously used, was pushed along to the extreme end of this channel and the wounds in the skin closed. The three wounds healed by first intention and a week or so later were represented by linear scars; there was no evidence of any swelling or inflammatory reaction.

The monkey was kept on the verandah of the laboratory and was examined from time to time, gained weight and seemed perfectly well. On about August 8, before leaving on a trip to Sydney, I examined the monkey and he seemed perfectly well and there was no appearance of any reaction at the sites of inoculation or elsewhere. I did not make a detailed careful examination of the monkey again until August 31, when my chief assistant told me that he had for somewhat over a week noticed that the sites of inoculation were swollen. On this date I went and had a look at the monkey and found, as my chief assistant had stated, there were definite rounded swellings at the sites of inoculation. For the purpose of obtaining a more satisfactory examination, the monkey was anæsthetized with chloroform and brought into the laboratory. It was then found that on the buttock there were two rounded swellings about 1.25 cm. across, apparently over the original site of inoculation. One of these was somewhat larger than the other and stood up above the surface about 0.6 cm.. The other was somewhat flatter and softer. The harder and larger lesion appeared to be over the intra-muscular site of inoculation. Both of these swellings showed no signs of acute inflammatory reaction, though they were slightly pinkish and their summits were very slightly abraided, possibly due to the animal scratching. On the breast was a lesion about 3 square cm. raised above the surface about 0.3 cm. or more and with a somewhat abraided surface. I could not make out whether this lesion was over the original wound opening or at the end of the tunnel, but I think the latter. I could find, however, no trace of the original wound. I made immediate smear preparations from the three lesions by pricking with a needle to the small drop of blood and found leprosy bacilli in each case.

I decided to return the monkey to the cage and await further developments. The monkey then was apparently well out of the anæsthetic, having regained both his conjunctival reflexes and making purposive movements. However, on returning to the laboratory for another purpose, three hours afterwards, I found the monkey lying on his face, still warm, but dead. I placed the body in the ice chest until the next day, when I made photographs of the lesions, which, however, in the dead animal showed much less distinctly. I tried to obtain a monkey for inoculation purposes all that day in Brisbane, but failed to do so.

That night at 11 p.m. I made a detailed *post mortem* examination of the monkey and set aside tissues for sections and made numerous smear preparations. The result of the *post mortem* examination showed that, apart from great congestion of the viscera, accompanied by hæmorrhages, specially in the mesentery, there was no marked abnormality; particularly there was no evidence whatsoever of any process simulating tuberculosis. In smear preparations made from the cut surface of the three lesions numerous leprosy bacilli were found. Many of these were in the typical globi form. Many of them also stained evenly without the granular appearance which has been suggested is a sign of degeneration. Leprosy bacilli also were found in both axillary glands and in the left inguinal gland, but have not, so far, been found in the right inguinal gland. Leprosy bacilli were also found in considerable numbers in the large connective tissue cells of the spleen. The full examination from all other smear preparations made is not yet complete and it is possible that these findings may be added to. Sections have so far been made of the three lesions and of certain of the internal organs, spleen, liver, kidney, axillary glands. Except in the case of the primary lesions, we have not found any notable pathological microscopic condition so far.

The primary lesions merit special description. To the naked eye on cutting them across they appeared to consist of swollen firm tissue. The principal naked-eye lesion in the case where the material was inoculated into the muscle was a pale, firm nodule, rather larger than a pea and apparently completely embedded in the muscle. In the other two lesions the increase of tissue was apparently in the subcutaneous layer. No pus was found in any of these lesions. Microscopically all these lesions showed an essentially similar appearance. This consisted of an accumulation of connective tissue cells, varying somewhat in type in different parts of the lesion and in the three different cases, but chiefly consisting of fibroblast

cells and larger, more irregular, polyhedral cells of the so-called epitheloid type. These latter cells in some cases seemed to occur in localized collections and some of them were very large. In one of the lesions certain parts showed appearances strikingly resembling those of a large spindle cell sarcoma; a few mitotic figures were present. In one of the lesions on the buttock there were small central areas of necrosis in which could be found collections of polymorpho-nuclear cells. In neither of the other cases, however, was any necrosis found. In a more superficial lesion on the buttock one gaint cell was noted. In the deeper intra-muscular lesion of the buttock numerous atypical looking multi-nuclear masses were seen. These, I am rather inclined to think, are due to alterations in partly degenerated muscle tissue. Giant cells have not yet been noted in the breast lesion. Around this connective tissue area was in each case a ring of lymphocyte-type cells. There was considerable vascular congestion, especially in the breast lesion. I have found it very difficult to demonstrate the leprosy bacilli satisfactorily in the paraffin sections, but they are apparently present at any rate in considerable numbers in the two lesions which we examined. I do not wish at the present stage to say anything more about their distribution.

The production of granulomatous lesions after an incubation period of more than 60 days in the macaque monkey and the finding of bacilli in the glands of the same and opposite side and also in the spleen, all of which bacilli looked quite normal and showed no signs of degeneration, seems to be worthy of record. What would have happened to the monkey had it lived, of course, one cannot say. I have, however, inoculated material from this monkey into another monkey and also into guinea pigs and rabbits.

EXOPHTHALMIC GOÎTRE COMBINED WITH MYASTHENIA GRAVIS.

A Sequel.

By **George E. Rennie, M.D., F.R.C.P, (Lond.),**
Senior Physician, Royal Prince Alfred Hospital, and Lecturer in Clinical Medicine, University of Sydney.

The prognosis in *myasthenia gravis* is uncertain. Farquhar Buzzard states that "it is impossible in the present state of our knowledge to advance any data upon which a reliable prognosis can be built. Emphasis can only be laid upon the grave and dangerous character of the disease, and attention drawn to the fact that the issue is sometimes, though rarely, favourable." Oppenheim says that improvement and even recovery is, however, not impossible and even the most severe symptoms of paralysis may disappear, but after a stage of complete health they may suddenly re-appear and lead to a fatal termination. Goldflam specially noted the possibility of recovery. Osler states that the patient may live many years and recovery may take place.

These statements refer apparently to *myasthenia gravis* alone. I do not find any reference to the prognosis in a case of combination of exophthalmic goître with myasthenia. But we would naturally suppose that the prognosis would be much more grave in a patient presenting in a marked degree the symptoms of both these diseases. The prognosis in exophthalmic goître, according to Dr. Hector Mackenzie, is uncertain. "In any individual case the duration, the course and the end of the disease are uncertain. In about 25% of the cases death results from the disease; in about 50% more or less complete recovery takes place; in the remainder the disease continues in a chronic form during life."

In the *Review of Neurology and Psychiatry* (Volume 6, Part 4, 1908) I published the notes of a case of a man, aged 27 years, who presented the combined clinical picture of exophthalmic goître with *myasthenia gravis,* who had been under my care in the Royal Prince Alfred Hospital in 1907. The subsequent history of this case is sufficiently striking to warrant its being put on record. When he left the hospital I never expected to see him alive again, but, to my astonishment, he presented himself at my consulting rooms in May of this year, apparently in good health. He told me that after leaving the hospital he went up country to his home and continued to take the mixture of strychnine and belladonna which he had been taking in the hospital. His symptoms gradually disappeared and at the end of about twelve months he was able to do light work. He continued to get gradually stronger, until about three years ago when he passed through a rather severe attack of typhoid fever, which kept him in bed for eight weeks. He did not appear to have felt much the worse for this illness, for since then he has been able to work in the shearing sheds from 6 a.m. to 6 p.m., with intervals for meals, for several weeks on end and did not suffer any inconvenience in consequence. He did not do actual shearing, but supervised and did other light work in the sheds. He states that he feels stronger, but cannot continue to do strenuous work for many hours together, as he gets pain in the muscles of the back, but he never gets the condition of exhaustion of the muscles which was so characteristic a feature in his illness previously.

On examination of the patient it was noted that he had gained in flesh and strength. As regards the symptoms of exophthalmic goître which he had manifested when seen eleven years ago, these had practically disappeared. The thyroid gland now is not enlarged, nor is it apparently atrophied; there is no exophthalmos, though the eyes are not normal, as will be explained shortly. There are no tremors, no sweating, no pain or palpitation. The pulse-rate is 72, quite regular in rhythm, soft and compressible. The systolic blood pressure is 100 mm.. The heart's apex beat is in normal position and the heart sounds are clear. He had no undue frequency in micturition. The urine was acid; its specific gravity was 1,014 and it contained no albumin or sugar.

As regards the symptoms of *myasthenia gravis,* these too have all disappeared. He no longer gets the state of fatigue of his muscles; his reflexes do not become exhausted. His face is natural and does not show the "nasal smile" described by the late Sir W. Gowers. There is no ptosis, but it is noted that there

is still paresis of the external ocular muscles giving rise to occasional diplopia. When the patient is told to look straight at the examiner's finger held directly in front of him, it is seen that the patient's right eye is deviated upwards and slightly inwards, while the left eye is directed normally to the finger. If now the left eye is covered up and the patient again told to direct his right eye towards the finger, it is seen that the right eyeball moves downwards and is fixed in the horizontal position. On uncovering the left eye, it is seen to be directed downwards and slightly inwards and, as it is directed to the finger, it is noted that the right eye again assumes the former position, that is, deviated upwards and slightly inwards. Although there is this marked "skew deviation," it is noteworthy that there is no diplopia unless he stares at an object for some time. He can read for some time without any discomfort in the eyes or pain in the head. In addition to the "skew deviation" there is in the left eye paralysis of the superior and external rectus and in the right eye paralysis of the superior, external and inferior rectus muscles. The pupils are medium sized and react to light and convergence. These conditions are permanent and do not vary from day to day.

The issue of this case is interesting from two points of view. First, the survival for a period of at least 13 years of a patient suffering from a combination of the symptoms of two diseases, each of which is considered to have a grave prognosis; and not only a survival after these many years, but a practical recovery of a large amount of health and strength. The second point is the permanence of some defect of of the external ocular muscles. In exophthalmic goître the symptoms are certainly due to over-activity and perverted function of the thyroid gland, but there is no evidence of organic changes in the central nervous system, in the sympathetic or in the muscles. Though the pathology of *myasthenia gravis* is obscure, it has been definitely proved that there are no characteristic organic changes in the central or peripheral nervous system. Buzzard, however, in referring to the state of the muscles, says "that, in addition to the presence of lymphorrhages, the muscle fibres in cases of *myasthenia gravis* are wont to display early changes in the form of plasmatic swelling, proliferation of sarcolemmal nuclei, possibly hyaline and granular degeneration, occasionally distinct evidence of muscular atrophy strongly resembling that seen in amytrophic lateral sclerosis will be forthcoming. Unless the atrophy is marked, the muscles do not show any abnormality to the naked eye." This might be taken to explain the present condition of paresis of the external ocular muscles in this patient. But it is nevertheless remarkable, even if we accept the view that the ocular muscles are the seat of atrophy, that this process has not advanced further in the course of these years and, as we might have expected, that a condition of complete external ophthalmoplegia in both eyes has not been reached by this time.

It is also noteworthy that no other muscles in the body appear to have shared in this atrophy. The cardiac musculature, which is so often affected in exophthalmic goître, has apparently not been involved in this patient, for, although his pulse is soft and his blood pressure low, he does not suffer from any symptoms suggestive of any cardiac weakness, such as pain in the chest or palpitation of the heart or dyspnœa on exertion, and this in spite of the fact that he has so recently passed through an attack of typhoid fever.

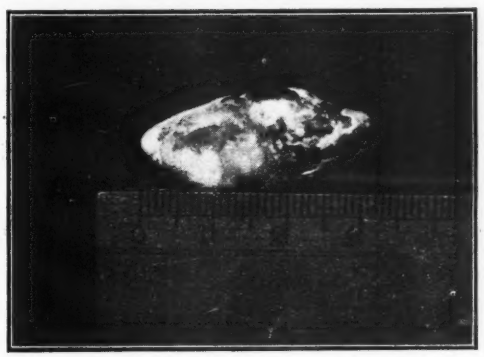
Reports of Cases.

A CASE OF URETHRAL CALCULUS.

By **Phillip S. Clarke, M.B., Ch.M. (Syd.), F.R.C.S. (Ed.),**
Cairns, Queensland.

Although urethral calculi are not infrequently met with, the following case will be of interest to members of the medical profession, on account of the extraordinary size of the stone.

In September a Malay, E., consulted me, giving the history that there had been a hard lump in his penis for the last twenty-five years. Pain was constant and at times severe; micturition difficult and painful, at times the urine only passing drop by drop. Insomnia occurred at intervals due to pain. It was small at first, but the growth had been constant. He had not had it removed because he had been "too busy." About the upper third of the penis was a hard, fusiform mass, barely movable. Under a general anæsthetic it was removed by incision into the urethra and the wound closed by suture, the wound healing practically by first intention. Photograph, taken by Dr. Elliott, shows



its length 5.3 centimetres and the greatest diameter 1.4 centimetres. The weight was 5.3 grammes. By test it was found to consist of uric acid and calcium phosphate.

Reviews.

TEXTBOOKS OF PHYSIOLOGY.

The student of medicine and the practitioner desirous of brushing up his knowledge have now no dearth of textbooks on physiology. The latest addition to the list is a textbook by Martin Flack and Leonard Hill.[1] The authors state that "the book has been written with the primary object of giving to the student in an easily understandable form the fundamental facts and theories of physiology, bearing in mind the limitations necessary for a student's textbook." The authors may be considered to have attained considerable success in their objects.

The book is not of even quality throughout. Those parts of the subject on which the authors themselves have done such valuable work are, as one might expect, treated with more detail than some other parts. The chemistry of the

[1] A Textbook of Physiology, by Martin Flack, C.B.E., M.B., B.Ch., and Leonard Hill, M.B., F.R.S.; 1919. London: Edward Arnold; Royal 8vo., illustrated; pp. 800. Price, 25s. net.

body is treated early and in a clear and comprehensive manner, the chapter on enzymes in particular giving a very lucid résumé. The physiology of the circulation is dealt with in great detail, extending to 140 pages, and practically all the important aspects of the subject are passed in review. The physiology of respiration is also considered very fully, and here the authors' work makes the treatment particularly good. A useful chapter is that on ventilation and it repays careful reading.

General metabolism and dietetics are considered before the subject of digestion is treated, a reversal of the usual method. In this section a great deal of useful information is collected, which is often difficult to obtain; indeed, the whole section is probably one of the best in the book, although very uneven in quality. Numerous tables are given of the dietary requirements under different conditions of life and a particularly useful table is that showing the composition, food value and cost of different foods. The prices, however, are those obtaining in England prior to the war. Another table gives the food values, in household measures, of a number of ordinary articles of diet, such as a glass of milk, a slice of bread and so on.

The section on internal secretions is less satisfactory than one might have expected. Surely it should not be necessary now to treat the thyroid and parathyroids together. The physiology of the central nervous system is considered in less detail than one usually finds in textbooks on physiology, but there is quite as much as the average student will require or be able to assimilate.

The illustrations are numerous and well chosen. Altogether, the book is a very useful publication, although it would probably fulfil its objects better after a liberal application of the pruning-knife.

The second part[2] of the work on physiology in the "Catechism Series" is a bad type of the "cram" book. In this third edition the subject matter has been brought well up to date, but the information is necessarily very incomplete. The student could not learn physiology from this type of book and if he needs to summarize the information contained in the textbooks he would be much better advised to prepare his own summary. The fact that this is a third edition indicates that there is a call for this type of book, but it is unfortunate that this should be so.

The parts of the subject dealt with in this volume are respiration, voice and speech, nutrition, gastric digestion, digestion in the intestine, absorption of food, heat production and regulation of temperature, general metabolism, dietetics, ductless glands and internal secretions, and the whole of this is treated in 79 pages in the form of questions and answers. The answers are so short that many of them are misleading, some of them entirely wrong. So much is bad that it is unnecessary to single out examples.

A book[3] of quite a different type to the work in the "Catechism Series" is that by Bainbridge and Menzies. The authors state that "our object in writing this book has been to bring together in a concise form the fundamental facts and principles of physiology, primarily with the object of meeting the requirements of the medical student preparing for a pass examination in the subject of physiology."

The subject is treated in a clear and concise manner, but it is most uninspiring reading. The student who has learnt his physiology from this book could no doubt pass his examinations well, but one fears that he would consider physiology as a very uninviting subject.

With these limitations the book is an excellent one and the different parts of the subject are dealt with with surprising completeness. There are no outstanding features and the balance is fairly well maintained between the different sections.

The book should be a useful one for a student preparing himself for examination in physiology and for general revision purposes.

The Opticians Bill, which has occupied the attention of the Legislative Council of South Australia for several weeks, was read a third time and passed on October 30, 1919.

---

[2] Catechism Series: Physiology; Third Edition; Part II.; 1919. Edinburgh: E. & S. Livingstone; Crown 8vo., pp. 79. Price, 1s. 6d..

[3] Essentials of Physiology, by F. A. Bainbridge, F.R.S., M.A., M.D., F.R.C.P., and J. Acworth Menzies, M.A., M.D.; Third Edition; 1919. London: Longmans, Green & Company; Demy 8vo., pp. 484, with 179 illustrations. Price, 12s. 6d. net.

University Intelligence.

THE UNIVERSITY OF SYDNEY.

A monthly meeting of the Senate of the University of Sydney was held on Monday, November 3, 1919, at University Chambers, Phillip Street, Sydney.

The following degrees were conferred *in absentia*: Master of Surgery, C. Badham, Brenda A. Mitchell, C. Uren; Bachelor of Science, G. L. Swan.

A letter from Mrs. Weston, donating the sum of £100 for the foundation of a prize to a student in electrical engineering and to be called the Percy Leonard Weston Prize, in memory of her late son, Percy Leonard Weston, B.Sc., B.E., was received. It was resolved that the gift be accepted and a letter of grateful appreciation forwarded; also that the question of the conditions of the award of the prize be reported upon by the Faculty of Science.

The death of Professor Pitt Cobbett (Professor Emeritus in Law) was reported and sincere regret was expressed by the Senate. A letter was received from Mr. M. W. Simmons, notifying that, under Professor Cobbett's will, the sum of £2,000 is bequeathed to the University of Sydney for the foundation of a scholarship, or scholarships, for the study of law upon the death of his brother.

A letter was received from Professor Wilson, offering to donate on behalf of his wife and self to the general and law libraries of the University (*i.*) the "Annual Register," complete from its beginning in 1758 to 1889, (*ii.*) Howells's "State Trials" to 1820 (34 volumes with index), which had formerly belonged to the library of the late Sir Julian Salomons. It was resolved to accept the gift with thanks and to forward a letter of appreciation to the donors.

A letter was received from Dr. Foreman, resigning the lectureship in gynæcology from December 31 next. The resignation was accepted and it was resolved that a letter of appreciation of his services as lecturer since 1897 be forwarded to him.

On the recommendation of Professor Irvine, it was resolved that the lectureship in municipal administration be advertised.

On the recommendation of the Dean of the Faculty of Arts, the application of Miss S. J. Williams, M.A. (Melb.), for admission *ad eundem gradum* was granted.

On the recommendation of the Joint Committee for Tutorial Classes, Mr. B. H. Molesworth, M.A., was appointed Resident Tutor at Broken Hill from March 1, 1920.

On the recommendation of the Joint Committee, approval was given for the establishment of a Tutorial Class in Musical Appreciation at the Conservatorium, under the supervision of Mr. H. Verbrugghen.

The following Senate representatives were appointed: (*i.*) The Union. Messrs. L. Harrison and J. le G. Brereton; (*ii.*) Women's Union, Mrs. Wilson and Mrs. Peden.

The following report of the Committee appointed by the Senate to consider the details of the changes recommended by the Professorial Board in regard to the creation of new faculties and of the procedure in their accomplishment was adopted and it was referred to the By-laws Committee to drdaft consequential amendments in the by-laws.

The Committee had the honour to recommend the adoption of the following amended by-laws:—

Chapter VII., Section I. (Calendar, page 34): There shall be ten faculties in the University, *viz.*, (1) Arts, (2) Law, (3) Medicine, (4) Science, (5) Engineering, (6) Agriculture, (7) Veterinary Science, (8) Dentistry, (9) Economics, (10) Architecture.

Section II.: Add the words: "The Dean of any faculty shall be invited to attend and may be heard at the Senate during the discussion of business relating to his faculty."

Chapter II., Section 9: Until the Senate shall otherwise provide, the four fellows elected (one by each of four faculties) shall be elected by the Faculties of Arts, Law, Medicine and Science respectively.

The Committee desires to point out that the adoption of these amended by-laws will involve consequential amendments in the by-laws relating to the constitution of the Professorial Board and the Proctorial Board, as well as the drafting of new by-laws for the constitution of new faculties.

The Medical Journal of Australia.

SATURDAY, NOVEMBER 15, 1919.

The Tasmanian Muddle.

In the year 1907 one Victor Richard Rattan applied for registration as a medical practitioner to the Court of Medical Examiners of Tasmania. There does not appear to be any proper record of the application. It is presumed that a document, purporting to be a diploma issued by the Harvey Medical College of Chicago, was submitted for inspection, although we are unable to find any definite support of this assumption. The registration was effected, as is evidenced by the publication in the *Government Gazette* of the following entry:—

> "Ratten, Victor Richard, May 22, 1907, M.D., Harvey College, Chicago, Illinois, U.S.A., 1907."

In 1916 the Government threatened to throw the public general hospitals open to all persons, irrespective of their means. The Tasmanian Branch of the British Medical Association brought to the notice of the Government the resolutions of the Association, both in Australia and in other parts of the Empire, and of the Australasian Medical Congress dealing with the exclusion of well-to-do persons from public hospitals. It was especially urged that these institutions had been established for indigent persons in need of medical treatment and that the admission of persons able to pay for treatment elsewhere was detrimental to the interests of the sick poor for whom hospitals had been established. While the negotiations were proceeding between the Tasmanian Branch of the British Medical Association and the Government, the attention of the former was directed to an alleged irregularity in the registration of Victor Richard Rattan, who was practising in the north of the State. The Branch thereupon requested the Medical Council to inquire into the matter. The Harvey Medical College was unknown to Australians and it transpired that it had ceased to issue any diplomas by the date on which the document held by Victor Richard Rattan was supposed to have been signed and issued. Moreover, a question was raised concerning the length of the period of study he had passed through prior to the reception of the alleged diploma. Some delay took place and in the interval the Government introduced an amendment to the *Hospitals Act*. The attitude adopted by the Government was so hostile and unbending that the members of the honorary medical staffs of the public hospitals conceived it to be their duty to the sick poor and to the profession of medicine to sever their relations with these institutions. The Government replied by engaging the services of five practitioners to carry on the work of the Hobart General Hospital. Each of these men was appointed at a salary for a definite period. Victor Richard Rattan was appointed Surgeon Superintendent.

When the Medical Council had arrived at the stage of proceeding with the inquiry into the qualifications on which registration had been granted to Victor Richard Rattan, the Government, at the request of the respondent, intervened and directed that a Royal Commission should conduct the inquiry. The Medical Council stood aside. The reference to the Royal Commissioner, however, was limited to two side issues, and we were forced to the opinion that the Government had no intention of instituting a full investigation into the validity of the document on which its *protegé* had secured registration as a medical practitioner. The Royal Commissioner arrived at the astounding conclusion that the Harvey Medical College was in existence on March 8, 1907. This finding was based on a cabled message purporting to come from the chief signatory of the document in question and in face of a flat contradiction of the statement cabled by Dr. N. P. Colwell, the Secretary of the Council on Medical Education of the American Medical Association.

In view of these events the Council on Medical Education in Chicago caused a diligent and exhaustive search to be made to discover the facts. The results of this search are embodied in an article which appeared in *The Journal of the American Medical Association* of August 2, 1919. This article was reproduced *in extenso* in our issue of November 8, 1919.

When this information, supported by further evidence of a most flagrant nature, was received, the Tasmanian Branch communicated with the Premier,

in order that he might have the whole question properly investigated by some independent person acting as commissioner. It was held that the Government would protect the public if it were found that the document on which the registration of its *protegé* was based, was fraudulent. Moreover, the Ministers have stated in Parliament and elsewhere that they would not shield the person concerned if this document proved to be fraudulent. It is not to the credit of the Premier or his Ministers that the reasonable request of the Tasmanian Branch, accompanied as it was by the most damning statements made by persons of acknowledged repute, was refused. The Premier has endeavoured to force the Tasmanian Branch of the British Medical Association into the position of complainants before the Medical Council. The Tasmanian Branch has not on a single occasion made any charge. It has carried out an important function in the public interest in calling attention to the alleged discrepancies between the date appearing on the so-called diploma and the date on which the Harvey Medical College "went out of business" and, further, has collected and produced evidence relative to this document.

It will be remembered that the Government referred the matter in 1918 to a Royal Commission because they held that the Medical Council was not an unbiassed body. The Tasmanian Branch of the British Medical Association recognized the validity of this objection and acquiesced. Since the new *Medical Practitioners Act* has come into force, the Government has nominated the members of the Medical Council; a majority of the members are at present holding salaried positions at the Hospital in defiance of the resolutions of the Tasmanian Branch of the British Medical Association. Moreover, the Chairman of the present Council was a member of the Court of Medical Examiners who effected the registration of Victor Richard Rattan in 1907. It is therefore undeniable that if the Medical Council in 1918 was not sufficiently unbiassed to justify a reference of this matter to them, the same must obtain to-day.

There are but two other courses open. These are prosecution in the courts or reference to a Royal Commission. We cannot recommend the former. Such a procedure would involve vindicativeness against a persons who is, in fact, merely a means to an end, utilized by the Government in its determination to destroy the character of a public hospital at which medical practitioners rendered honorary services. Moreover, the medical profession has no further interest in the matter than that affecting the honour of that profession and the efficiency of medical services rendered to the public.

The third expedient is advisable from every point of view. There is no need for any charge to be formulated. The commissioner would be required to investigate all the circumstances surrounding the document on which Victor Richard Rattan sought to be registered as a medical practitioner in 1907. The reference would have to be wide, so as to include an inquiry into the course of study and the method of examination followed. The document contains the statement that "Victor Richard Rattan, having completed the course of study required by this institution and having passed a satisfactory examination" and consequently it is necessary to ascertain the nature of the study and the form of test. The question of the association of William Gayle French and the Harvey Medical College and Hospital, and of the Harvey Medical College and Hospital and the Harvey Medical College, should also fall within the scope of the inquiry. In short, the Government is now faced with the necessity of appointing a Royal Commission to investigate the validity of the diploma submitted by Victor Richard Rattan in order to protect itself from the charge of being party to a fraudulent transaction. It must be done at once.

THE TRAINING OF PHARMACEUTICAL CHEMISTS.

The sale of drugs and poisons is limited in most countries to certain persons. These persons become qualified for registration as pharmacists or pharmaceutical chemists after receiving a special training. In the various States of the Commonwealth of Australia the pharmaceutical student must reach a minimal standard of general education which is laid down by regulation. The student serves as an apprentice to a registered pharmacist for a number of years, whereby a knowledge is obtained of the practice of the profession. The student has sufficient opportunity of gaining acquaintance with his duties to render him proficient in the routine work of preparing drugs for medicinal use. This period is long enough to form

habits of accuracy and attention, so that there will be little fear of mistakes occurring in the prepared medicines. In addition the student attends courses of systematic instruction in botany, chemistry and *materia medica* at some college or university where these subjects are taught in an approved manner. The student acquires a knowledge of the various parts of vegetable substances and of the characteristic features of the plants from which medicinal substances are derived. He is taught the chemistry of the principal inorganic and organic bodies, the outlines of qualitative analysis and the methods used for the quantitative estimation of the substances used as drugs. Above all, he is made familiar with the appearance of drugs, with their characters and with the tests to which they respond. Before registration the student has to satisfy examiners that he has attained proficiency in the subjects of study. At the termination of the period of instruction the pharmacist is able to recognize with ease the nature of the drugs with which he deals. In some States the student also receives systemic instruction in respect to the preparation of drugs for administration.

Many drugs act in a potent manner on the functions of the body. If they are given in too large dose they behave as poisons and may lead to death. Their use depends upon their administration in exact quantity. The training of the pharmacist is designed to make him precise in his measurements and trustworthy in his use of drugs. The reliability of the pharmacist is dependent to a considerable extent on his ready knowledge of the appearance and characters of drugs and their preparations. This knowledge guarantees the accuracy of his dispensing practice.

The restriction of the retail sale of drugs to these trained persons has for its aim the preservation of the public against errors in the purchase of drugs. The nature of drugs is such that the purchaser must be protected as far as possible from mistake in respect to the article that has been bought. *Caveat emptor* has no application to the purchase of medicines. The qualities of drugs are in many instances laid down in a pharmacopœia operative in the particular country. The pharmacist endeavours to ascertain that the drugs he sells are of the necessary purity. Persons who buy drugs from those who are not registered pharmacists, do so at their own risk. They make no use of those safeguards which have been laid down for their protection. They must abide by the consequences of their act. When the purchase is made from a registered pharmacist, the buyer has a right to receive an article of the nature that he demands. The pharmacist is bound to use reasonable care in obtaining drugs and in dispensing them. On him rests the responsibility of making sure that he uses pure drugs and that these are measured in an accurate manner. In return the public owe to him the duty of seeing that his trade is not invaded by untrained persons with no specific knowledge of drugs and their use.

Accidents will happen. There are no means by which they can be completely abolished as long as powerful poisons are used as drugs. They will be less frequent when the dispenser is aware of the accumulated experience of the ages in the methods of guarding against them. They will be diminished in number with increased knowledge of the behaviour of particular drugs under different circumstances. In this case knowledge may mean power to avert the consequences of an error that has been already made.

THE BACTERIOLOGY OF INFLUENZA.

The world has been swept by an epidemic of a disease having few identifying characteristics. Notwithstanding the fact that the infections have been almost uncountable and the opportunities for studying the ætiology and pathology of the disease immense, we are still ignorant of the cause of influenza. In reviewing the work of Dr. F. S. Lister at the South African Institute for Medical Research, we cannot refrain from congratulating this ingenious investigator on the attempt he has made to solve the problem at issue. Dr. Lister has investigated the bacterial content of the naso-pharyngeal mucus, of the secretions found in the lungs and pericardium, of the blood and of the pus found in the pleura of persons suffering from influenza.[1] In all 95 patients served as the source of material for this investigation. The author is little inclined to place reliance on the findings in the examinations of the sputum and swabbings from the naso-pharynx, because the organisms commonly found in influenza are frequent inhabitants of the upper respiratory tract of normal individuals. Pneumococci, *Micrococcus catarrhalis*, staphylococci and diphtheroids were found in varying quantities. Organisms indistinguishable from Pfeiffer's influenza bacillus were isolated from three samples of sputum and from the swabbings of three throats. In the next place he investigated the bacterial content of the lungs of 56 natives who died of the disease on the gold mines. In 53 instances the

[1] "The Bacteriology of Epidemic Influenza on the Witwatersrand," *Publications of the South African Institute for Medical Research*, April 30, 1919.

influenza bacillus was cultivated; pneumococci were found in 42 specimens, while other organisms were found in small numbers and on infrequent occasions. In four lungs the influenza bacillus was present in pure culture. Blood was examined six times. It was taken from four European women and two natives during the acute stage of the disease. Only once was an organism isolated. It proved to be a pneumococcus of type II. (group *B* of Lister's classification). Pus from empyemata was studied six times. In three cases it contained *Streptococcus hæmolyticus*. In one there was *Staphylococcus albus* and in the fifth a pneumococcus and the influenza bacillus. The pneumococci isolated in the investigations were studied. The most prevalent was Lister's sub-group *B* and sub-group *E*. The pneumococci usually found in epidemic pneumonia, groups *A*, *B* and *C*, were absent in all but one case. These cocci, according to Lister, do not inhabit the upper respiratory tract under normal conditions. Those that were found, on the other hand, are the usual types found in healthy persons. Dr. Lister expresses the opinion that the results of his investigations appear to indicate that the *Bacillus influenza* is the cause of the primary infection in influenza. He recognizes the prudence of leaving it undetermined whether this organism is a secondary invader or the primary cause, but in the absence of more complete knowledge he is inclined to accept the latter alternative. He suggests that the influenza bacillus lowers the resistance of the individual to such a degree that he becomes an easy prey to bacteria normally present in the upper respiratory tract. In regard to the question of prophylactic or therapeutic vaccination, he states that it is hardly worth discussing. Much has to be discovered before it is possible to form an opinion concerning the possibilities of prophylactic or therapeutic vaccination with the influenza bacillus. To vaccinate against complications, is, to his mind, putting the cart before the horse. He regards wholesale inoculations in the midst of an epidemic at the present time, as quite unjustifiable.

In conjunction with Dr. E. Taylor, Dr. F. S. Lister has undertaken some experimental work in connexion with selected influenzal infections.[2] Endeavours were made to infect eleven volunteers and four monkeys (*Cercopithecus lalandi*). Special precautions were taken to prevent any of the volunteers or monkeys from being infected in the usual manner. He admits, however, that, although none of the volunteers had suffered from the disease before the beginning of the experiments, nine had certainly been exposed to infection. In a few instances the exposure to infection was prolonged and intimate. It is therefore not improbable that some of these men were naturally resistant to the disease. The infective material was derived from the naso-pharyngeal washings and the sputum from patients in different stages of infection. The material was filtered through Berkefeld "N" candles. We would point out in this place that, until the fluid is shown to contain the infecting organism, it is useless to employ filtration. The infected or supposedly infective fluid was sprayed into the noses and mouths of the volunteers and monkeys. Similar experiments were carried out with cultures of three strains of influenza bacillus and with a Gram-negative diplococcus, resembling the meningococcus or *Micrococcus catarrhalis* to some extent, as well as with a Gram-positive coccus isolated from a patient with typical influenza. Spraying with these bacteria failed to produce any illness. Two of the volunteers developed a febrile disturbance about 36 hours after a spraying with unfiltered naso-pharyngeal washings from a nurse on the third day of disease and from a male patient on the fourth day of the disease. The monkeys treated with the same material remained well, as did three other volunteers who received unfiltered washings. No illness followed the spraying with filtered material. The unsatisfactory histories of the volunteers as regards previous exposure to infection, the small number of experiments, the negative results in all the monkeys and the failure to demonstrate the usual secondary invaders in the two alleged positive experiments lead us to doubt whether any deductions can be drawn from these experiments.

[2] "Experimental Investigations of Epidemic Influenza at Durban," *Ibid.*

THE EFFORT SYNDROME.

Since Mackenzie first showed that the signs and symptoms associated with cardiac disturbances could not be explained on the convenient assumption that the primary disturbance was situated in the valves of the heart, our conception of heart disease has undergone a complete reconstruction. The recognition of the essential changes in the myocardium has led to the introduction of the term effort syndrome. The condition covered by this term is not necessarily associated with inflammatory lesions of the cardiac valves nor with degenerative changes of the myocardium. Dr. Thomas Lewis has paid a considerable amount of attention to this aspect of the subject. He has been selected as a physician on the permanent staff of the Medical Research Committee of the National Health Insurance and in this capacity published in 1917 a report on the condition of the heart in soldiers who are supposed to have suffered from valvular and other cardiac lesions. More recently he has added to his previous communications by means of memoranda dealing with special points in this connexion. In a special note on the condition of patients with valvular and non-valvular heart affections, he points out that the syndrome of effort is more frequently met with in soldiers who do not manifest any signs of structural disease of the cardiac apparatus. It is also met with in soldiers with undoubted valvular lesions. The comparison revealed at once that non-valvular affections were considerably more frequent among soldiers than valvular. The explanation is that recruits with valvular disease were not accepted for service, or if they were passed by the examining medical officer, they were discharged from service as soon as the condition was discovered. On the other hand, the first appearance of symptoms during active service was relatively more common among those with non-valvular conditions. The period of service before discharge was approximately six months in the case of men with non-valvular lesions and 4.3 months in the case of men with severe valvular lesions. Non-valvular affections were more fre-

quent in men who had followed sedentary or light employment than in those who had been accustomed to heavy work. In the case of men with valvular lesions the frequency was only slightly higher among the former class. In regard to a preceding infective condition, such as rheumatism, trench fever, enteric fever and the like, it was noted that there was little difference between the men with valvular and those with non-valvular affections. A striking difference was noted in regard to rheumatism. No less than 61% of the men with valvular disease had had rheumatism, while in the case of men with non-valvular affections, the percentage was 23. Venereal disease obviously played but a small part, if any, in the ætiology of either condition. Dr. Lewis arrives at the same conclusion in regard to alcoholism, although he admits that his information is largely derived from the statement of the men themselves. In reviewing all the available evidence, he expresses the opinion that the effort syndrome is not referable to circulatory embarrassment in non-valvular affections. He is prepared to accept the assumption that the symptoms in valvular disease may be caused by changes other than those of the circulation. For example, the chief symptom is breathlessness. This symptom finds an adequate explanation in the ascertained deficiency of the "buffer salts" of the blood. This has been established by Barcroft. If these observations can find confirmation in a large series of cases, there would be reason to regard the two classes as primarily similar or identical. In the case of valvular disease, the effort syndrome is complicated by the organic changes in the heart, although these changes do not necessarily lead to impairment of the circulation. He is convinced that military service was not a predisposing cause to the effort syndrome, save in so far as it may have brought to light weaknesses that were previously latent and in so far as infective diseases were more common among men on active service than among men in civil life. The condition so minutely studied in soldiers does not differ materially from the same condition met with among civilians.

THE PREVENTION OF DISEASE AMONG MINERS.

The Board of Trade of New South Wales has issued a second interim report, which deals with the constitution and cost of a commission of inquiry into the conditions and prevalence of miners' phthisis and of other diseases affecting miners.

In a preliminary report a recommendation was made that a technical committee, with the necessary staff of assistants, should be appointed to examine and report on the dust present in sewer mining and other engineering operations carried out in Hawkesbury sandstone and on the conditions of dust in metalliferous mines at Broken Hill, Ardlethan and Cobar and at the ore treatment works associated with these mines and at similar works in other centres; and to determine by clinical and radioscopic methods, the morbidity of the respiratory organs in not less than 30% of the employees of mines and ore treatment works.

In July, 1919, the Board was informed by the Premier that consideration by Cabinet of these recommendations would be facilitated by more complete proposals concerning the cost and constitution of the commission. In August, 1919, the Acting President of the Board, His Honour Mr. Justice Edmunds, conferred with representative employers and employees at Broken Hill upon the question of the prevalence of various industrial diseases amongst the miners and upon the effects of these diseases on the industrial life of the centre. During the conference reference was made to the prevalence of lead poisoning amongst local miners and to the possible infection of the miners with anchylostomiasis. A full report of this conference is attached to the report as an appendix. As a result of this conference a public meeting of the Board of Trade was held in Sydney on August 29, 1919, when the views of various bodies were placed before the Board. An account of these proceedings is also appended to the report.

There appeared to the Board to be no question at issue between the employers and employees in the various industries affected as to the desirability of giving effect to the recommendation of the Board and of applying these proposals to the investigation of the incidence of plumbism upon the employees in the mines at Broken Hill. The question of the infection of the miners with anchylostomiasis seemed more open in character, but of no less importance.

This second report gives an account of anchylostomiasis and of the researches of the International Health Board of the Rockefeller Foundation. Special attention is given to the labours of Dr. J. H. Waite and his survey of Papua and to his preliminary statement concerning the distribution of this disease in certain towns and districts in northern Queensland. The Board arrives at the conclusion that anchylostomiasis has already obtained a firm footing in the Commonwealth and that it is relatively unimportant that it has not yet been detected in the mines of any State. It appears inevitable to the Board that the infection will reach these mines and that it will find in the prevailing absence of sanitation below and above ground at the mines and in the mining settlements, conditions favourable to the development of heavy infection. In this way foci will form from which the disease will be disseminated through the States. It seems to the Board that it would be regrettable in the extreme if no use was made of the opportunity of investigating the incidence of other diseases at Broken Hill.

The remaining portion of the report deals with the personnel of the commission and the cost of the inquiry. The Board estimates the cost of the investigation at Broken Hill in round figures at £13,500 and is of opinion that the expense will not exceed £15,000 if some further investigation is made in the case of rockchoppers in the metropolitan area and of the employees in one or two mining centres in the eastern section of New South Wales. This money will provide suitable investigators to carry out radioscopic, clinical, bacteriological, microscopical and chemical examinations and will ensure that the work is performed on sound scientific lines.

THE LATE DR. GUTHRIE RANKIN.

It is with great regret that we have to announce the death of Dr. Rankin, which took place on September 14, 1919, in Cornwall. Guthrie Rankin was a graduate of the University of Glasgow and a Fellow of the Royal Colleges of Physicians of London and Edinburgh. He attained considerable eminence in his profession, both as a physician and as a teacher. During the earlier period of his career he was an examiner at Glasgow and a lecturer at the London School of Clinical Medicine. He held positions at the Dreadnought Hospital at Greenwich and at the Royal Waterloo Hospital for Children and Women. His connexion with the Greenwich Hospital extended from 1899 until the time of his death, when he held the position of Consulting Physician to the Seamen's Hospital Society.

Guthrie Rankin has appeared anonymously before the medical profession in Australia for a considerable period. He contributed the London letter to the *Australasian Medical Gazette* and, on the establishment of *The Medical Journal of Australia* in 1914, he continued his contributions. His ability as a physician was greatly enhanced by his knowledge of human beings and his sympathetic personality.

Much indignation is being expressed by citizens in Brisbane concerning the release on November 2, 1919, of Dr. Eugen Hirschfeld from the Trial Bay Internment Camp. It will be remembered that Dr. Hirschfeld acted as German Consul in Queensland and held certain other positions of a medical and social nature. He was interned early in 1916 and his deportation has been anticipated.

Abstracts from Current Medical Literature.

PATHOLOGY.

(170) Identification of Diphtheritic Bacilli.

Chung Yik Wang has made use of fluid serum for the detection of the diphtheritic bacilli in swabs (*Journ. Path. and Bacter.*, May, 1919). It is now recognized that the correct diagnosis of diphtheria is based on the identification of *Bacillus diphtheriæ*. The means used for identifying the germ are its microscopical characters and its cultural appearances. As the bacilli are usually associated with other bacteria in the infected parts, the material removed for examination necessarily shows associated micro-organisms. Consequently, the solid cultures raised from such material rarely present colonies from which a diagnosis can be made by inspection. It is found more reliable to draw conclusions from the microscopical study of films prepared from cultures after a period of incubation. The specimen to be examined is usually taken by a swab twisted around a piece of wire. It is obvious that some parts of the material must be left in the swab, however thoroughly it is rubbed upon a solid medium. Again, the solidified blood serum or other substances used for growing diphtheritic bacilli are likewise suitable media for the growth of the associated micro-organisms. The author has made use of a fluid serum which obviates the difficulty of bringing the whole of the material removed on the swab into contact with the culture medium. The fluid medium is ox serum sterilized by heating in a water bath for three hours at 60° C. on three or more consecutive days. The tubes are incubated for 16 hours to ensure that they are sterile. The medium is made to give a reaction of about — 20, with litmus paper as the indicator. It is essential for the growth of *Bacillus diphtheriæ* that ox serum should be used and that the medium should be allowed to concentrate by evaporation to a syrupy consistency during the process of sterilization. The tubes are inoculated by inserting the swab into the tube, where it is left to soak in the fluid. The tubes are incubated in an almost horizontal position. After incubation for 16 hours, a thick film is prepared conveniently by the use of the swab. The film is dried slowly well above the flame, is fixed by heat and is stained. A comparison has been made on 250 specimens brought to the Reporting Department of the Laboratory of the Royal College of Physicians of Edinburgh. The swabs were first rubbed on Löffler's blood serum and then inserted and left in the tube containing the fluid serum. Diphtheritic bacilli were found in 68 specimens when the fluid serum was employed as a cultural medium, but only in 52 specimens in which the cultures were made on Löffler's blood serum. The organisms were found in every case in the fluid medium when they were noted on the solid medium and frequently in greater numbers. The author also states that diphtheritic bacilli are more easily recovered from the fluid culture for sub-inoculation from primary diphtheritic cultures.

(171) Sebaceous Glands in Cervix Uteri.

G. W. Nicholson (*Journ. Path. and Bacter*, May, 1919) gives an account of some sebaceous glands found in the *cervix uteri*. In 1904 supra-vaginal amputation of the cervix had been performed on a woman for carcinoma. In 1909 a further operation was performed, at which it was found that about one centimetre of the upper part of the cervix had been left behind at the first operation. Its canal was patent and was lined by a smooth mucous membrane without any glands visible to the naked eye. A microscopical examination of the cervix was made at the time of the operation and has recently been examined by the author. He finds that the remains of the cervix consist of dead scar tissue with numerous blood vessels and bundles of unstriped muscle. The cervical canal is lined by squamous epithelium, the superficial cells of which are dry and scaly. Short papillæ project down into the connective tissue. At one spot there is a group of small lobulated sebaceous glands, covered externally by columnar Malpighian cells. The glands open into a tortuous duct-like structure, which traverses the covering epithelium. Between these glands and the epithelium there is a dense infiltration with lymphocytes, which are absent elsewhere. The author points out in explanation that squamous epithelium extends in the fœtus for a variable distance above the external os. Later this epithelium is replaced by the cervical columnar epithelium which grows downwards. Small islands of the original cells, however, persist. These islets may occasionally increase in size by proliferation of their component cells. The formation of sebaceous glands is usually supposed to be an exclusive prerogative of the epiblast. It is customary to explain their presence in hypoblastic or mesoblastic tissues as the result of a dislocation of epiblast. The author sees no reason why such an assumption should be made to explain the presence of these sebaceous glands. He points out that the Müllerian ducts are separated from the surface by the urogenital sinus. He cannot imagine the slightest grounds for the belief that a skin graft is accidentally implanted on the stump of the cervix. He is thus driven to the belief that these sebaceous glands are the product of the mesoblastic lining of the cervix.

(172) Adenoma of the Bladder.

W. E. D. Korté (*Journ. Path. and Bacter*, May, 1919) describes an adenoma of the bladder. The tumour was situated medially at the apex of the bladder and projected as a finger-like process into the cavity of the organ. The tumour was excised at operation and subjected to examination. On section, it was seen to consist of a fibrous meshwork with the appearance of honeycombs. The mucous membrane of the bladder was continuous over the tumour except for one small area of denudation at the base of the projecting process. Under the low power of the microscope, the growth exhibited a number of acini varying in size and lined with columnar epithelium containing goblet cells. The supporting stroma was dense in some parts, but less abundant in other areas. The author suggests that the urachal remains at the apex of the bladder may have given rise to the formation of the tumour. The uro-rectal septum separates the hind gut from the uro-genital sinus and the allantois, which forms a part of this sinus. The cloacal portion of the uro-genital sinus dilates to form the bladder, while the urachus is formed from the intra-embryonic portion of the allantois, which is later obliterated. It seems feasible to explain the origin of the tumour from aberrant cells of the hind gut or from cells derived from the allantois, which have not undergone their usual involution.

(173) Complement Deviation with Hydatid Fluid.

E. Durot has measured the amount of fixation of complement by different hydatid fluids according to the method of Calmette and Massol (*C.R. Soc. Biol., Paris*, June 21, 1919). In the first stage of the reaction he mixes a constant amount (0.5 c.cm.) of the serum to be examined, which has been heated to 56° C., with a constant amount (0.5 c.cm.) hydatid fluid and with increasing quantities of the serum of a guinea-pig (0.1 c.cm., 0.2 c.cm., ... 0.5 c.cm.). The contents of the tubes are made up to 2.5 c.cm. with normal saline fluid. Control tubes of serum and alexine and of antigen and alexine are made up with the same proportions of constituents. The tubes are placed in the incubator at 37° C. for one and a half hours. In the second stage sheep's corpuscles and anti-sheep serum are added. The tubes are replaced in the incubator for 30 minutes. This reaction is used for diagnostic purposes. The serum is taken from the suspected patient. The reaction is considered to be positive if the number of units of complement deviated is greater with the mixture of serum and antigen than with the serum and antigen separately. Some observations have been made with the serum of a patient exhibiting an eosinophile reaction of 9 in 100 in the blood. Surgical operation verified the diagnosis later. With this serum fixation is complete, while all the control tubes exhibit total hæmolysis. The strength of the antibody in this serum has been measured by using varying quantities of the serum, a constant amount of hydatid fluid and a constant amount of the serum of the guinea-pig. In this example 0.3 c.cm. alexine, called 3 units, has been employed. The minimal amount of serum capable of preventing hæmolysis under the conditions of the experiment has been found to be 0.025 c.cm. serum. With the aid of this serum the author has measured the strength of the antigen in a series of hydatid

fluids of human and of animal origin. By using a constant amount of serum, one, two and three units of alexine and varying amounts of the hydatid fluids, this power of acting as an antigen could be measured. No anticomplementary activity was exhibited by any of the hydatid fluids of animal origin, but the human fluids had some activity of this nature. The author draws attention to the great differences shown by hydatid fluids in their capacity to act as antigens, a difference already mentioned by numerous investigators.

PÆDIATRICS.

(174) Dietetics in Childhood and Youth.

Infancy may be said to terminate by the end of the second year of life. The temporary teeth have all been cut and the child should be encouraged to use them by giving harder food, which it is necessary to masticate, and by seeing that such mastication is thoroughly carried out. Children require a relatively large amount of food compared with their body weight for repair of tissue waste, to produce heat and to provide for active growth. Porter Parkinson (*Practitioner*, July, 1919) considers, too, that the digestive possibilities of children vary exceedingly. Fat is a very important source of heat and muscular energy and is usually given as milk and cream. A child of 3 to 6 years should have a quart of milk daily. Too much fat causes digestive upset, but more commonly the carbohydrates are at fault in digestive disorders. Biscuits, etc., should not be given at odd hours and between meals. Sweets may be given in moderation, but at meal times. Proteins are necessary for growth and a child of 3 years should have meat once a day, as fish or chop or roast. Potatoes should be given well mashed at mid-day. The best vegetables are spinach, cabbage and French beans. Fruit should be given every day, oranges, grapes, cooked apples and prunes. Raw apple after breakfast and well chewed is good for mouth and tooth cleansing purposes. Bananas should not be given before the age of six. Cereal foods must be well cooked and, if containing whole grains, should be soaked overnight and cooked for 3 hours. The less a child takes before bed time, the better breakfast it will eat next day. The commonest dietetic error is overfeeding, usually with too frequent meals. Water should be given in moderate quantity toward the end of a meal, but in any amount between meals. With temporary indisposition, the food should be reduced in quantity and any milk given diluted. Broth or beef-tea may replace milk where distasteful. The digestion of fats and proteins is especially weak during febrile illnesses. Under the age of 6 years a child should never eat pork, ham, sausage, tinned foods, game, duck, etc.; nor cucumbers, tomatoes, radishes and raw celery; nor hot, new bread and cakes containing dried fruits; neither nuts, nor any pastry, nor bananas; nor tea, coffee, wine or beer. The feeding of older children approximates more closely to that of the adult, but lobster, crab and pork should be forbidden. Pastry may be allowed in small quantities, while cherries and stawberries are apt to disagree.

(175) The Abuse of Cathartics and Laxatives in Infancy and Childhood.

In a paper read before the American Medical Association, Fischer (*Arch. of Pediatrics*, June, 1919) stated that the daily administration of laxatives and correctives to infants and children was a common practice among many mothers and nurses, so common that it was rare to hear of a child whose bowels functioned normally. Drugs were used without rhyme or reason to suit the whims of the person in charge of the infant. While the daily use of drugs might be required for a short time to stimulate the secretions and cleanse the intestinal tract, it was unnecessary to continue this practise over a period of months. In acute febrile manifestations or in toxic or septic conditions, where sluggish or pseudoparalytic functions existed, laxatives were indicated and were urgently required to eliminate stagnant residue and fermenting particles of food and their toxins which might be absorbed into the circulation. This was especially true in intestinal intoxication accompanied by fever, caused by excessive protein or fat feeding. Parents and others should be warned that the pernicious habit of giving a daily laxative lessened the functional activity and weakened the intestinal mucosa. This would in time result in a total loss of the peristaltic waves, whereas by modifying the diet and adapting it to the child, the waves would be strengthened. Peristalsis could be stimulated and modified in many ways other than by drugs. Excessive purgation tended to weaken glandular function and robbed the glandular system of ferments and enzymes necessary for the proper assimulation of food and thus indirectly invited rickets and weakened structures in consequence of faulty metabolism. Rachitic atony of the musculature simulated constipation. In these cases cod liver oil was most efficacious. Thyroid therapy in doses of 15 to 60 mg. thrice daily was specific for the constipation of the cretin. Warm soap-water enemata should also be condemned, as the warm water caused relaxation of the muscles and in time would cause atony and a tendency of prolapse. A cold enema at 60° to 70° C. had a tonic stimulating effect, not more than a pint to be given before bed time or before the second morning feeding. Fresh, cool water by the mouth would aid in eliminating food residue, if given between meals several times a day. Water added to the food was not sufficient. For older children the mechanical stimulus to the gut could be given by the addition of bran to cereals or by the use of figs, raisins, whole wheat-bread and the coarse cereals as oatmeal. Vegetables, such as chopped spinach, French beans, the green rather than the starch varieties, should be given.

(176) The Relation of Convulsions in Infancy to Epilepsy.

Including only those cases in which the convulsions were the primary cause for attendance, Morse (*Amer. Journ. of Dis. of Children*, August, 1919) was able to collect satisfactory reports regarding 107 children, in none of whom was present any evidence of acute or chronic cerebral disease. His object was (1) to determine what proportion of the children with convulsions, though otherwise apparently normal, have epilepsy or develope it later, and (2) to find out, if possible, whether there was anything in the history or in the manner of the development of the convulsions to show whether or not they were manifestations of epilepsy. Ten of the cases showed evidence of spasmophilia. The convulsions ceased in all cases, but one baby became feeble-minded. It was possible that in this case the convulsions were due to some cause other than the spasmophilia. It would seem, therefore, that convulsions which occurred in babies with spasmophilia and which were presumably a manifestation of spasmophilia, were not likely to lead to the development of epilepsy later. In three instances the convulsions occurred in the course of whooping cough. Epilepsy developed in one of these patients and therefore these cases must be regarded seriously. There were 39 cases in which there was a single convulsion, or a series, at the onset of some acute disease or with an attack of acute indigestion. Thirty-five of the patients recovered, two became epileptic and feeble-minded, a third developed *petit mal* and a fourth might or might not be an epileptic. There were 55 cases in which there had been repeated convulsions during a considerable period or in which there had been repeated attacks suggestive of *petit mal*. Taking seven years as an arbitrary standard, only 21 of these patients could be considered normal at present. An attempt had been made to determine if there was anything in the history or character of the convulsions which would aid in determining in a given case whether epilepsy was likely to result in the future or not. So far nothing definite has been discovered. It was impossible to tell from the nature of the early attacks as to the nature of the attacks when epilepsy developed later. The longer the attacks persisted, the more probable was the diagnosis of epilepsy. Where there was no apparent ætiology, or when the cause of the attacks was apparently an injury or a severe labour, epilepsy was far more likely to develope than when the apparent cause was a disturbance in the digestive tract. The longer the attacks persisted, the more likely was it that epilepsy would supervene. General impressions, which could not be explained, had a certain value in diagnosis. There was no way to determine immediately when a baby or child had a convulsion, or had repeated convulsions, or repeated attacks suggestive of *petit mal*, whether or no it had epilepsy or would develope it later.

Naval and Military.

APPOINTMENTS.

The following announcements appear in the *Commonwealth of Australia Gazette*, No. 127, of November 6, 1919:—

Australian Imperial Force.

APPOINTMENTS, PROMOTIONS, ETC.

First Military District.

Major S. H. Seccombe, Australian Army Medical Corps, to be temporary Lieutenant-Colonel, 17th April, 1919.

Major (temporary Lieutenant-Colonel) S. H. Seccombe, Australian Army Medical Corps, to command 5th Light Horse Field Ambulance, *vice* Clarke, 17th April, 1919.

Second Military District.

Captain A. M. Aspinall, Australian Army Medical Corps, to be temporary Major, 7th May, 1919.

Major (temporary Lieutenant-Colonel) R. M. Bowman, Australian Army Medical Corps, relinquished the temporary rank of Lieutenant-Colonel, 2nd May, 1919.

Lieutenant-Colonel W. L. Kirkwood, O.B.E., Australian Army Medical Corps (now Officer Commanding 2nd Australian Stationary Hospital), to command 14th Australian General Hospital, and to be temporary Colonel whilst so employed, *vice* Summons, 29th April, 1919.

Captain (temporary Major) P. J. B. Murphy, Australian Army Medical Corps, to officiate as Deputy Assistant Director Medical Services, Australian Headquarters, Egypt, and to retain the temporary rank of Major whilst so employed, *vice* Joyce, 7th May, 1919.

Major E. K. Parry, M.C., Australian Army Medical Corps, to be temporary Lieutenant-Colonel, *vice* Single, 4th March, 1919. (This amends the date of the notification regarding this officer which appeared in Executive Minute No. 739, promulgated on page 1476 of *Commonwealth of Australia Gazette*, No. 114/19.)

Major (temporary Lieutenant-Colonel) E. K. Parry, M.C., Australian Army Medical Corps, relinquished the temporary rank of Lieutenant-Colonel, 19th May, 1919.

Captain (temporary Major) W. R. Young, Australian Army Medical Corps, relinquished the temporary rank of Major, and is granted the honorary rank of Major, 21st May, 1919.

Third Military District.

Major C. H. Anderson, Australian Army Medical Corps, to be temporary Lieutenant-Colonel, 2nd May, 1919.

Major (temporary Lieutenant-Colonel) C. H. Anderson, Australian Army Medical Corps, to command 2nd Light Horse Field Ambulance, *vice* Major R. M. Bowman, to 14th Australian General Hospital, 2nd May, 1919.

Captain R. C. Bassett, Australian Army Medical Corps, to be temporary Major, 7th May, 1919.

Major (temporary Lieutenant-Colonel) C. L. Clarke (now Officer Commanding 5th Light Horse Field Ambulance), to officiate as Assistant Director Medical Services, Australian Mounted Division, and to retain the temporary rank of Lieutenant-Colonel whilst so employed, 17th April, 1919.

Major A. Cook, O.B.E., Australian Army Medical Corps, to be temporary Lieutenant-Colonel whilst Officer-in-Charge Treatment, No. 1 Australian Dermatological Hospital, 2nd August, 1919.

Major N. H. Fairley, O.B.E., Australian Army Medical Corps, to be temporary Lieutenant-Colonel, 15th March, 1919.

Captain H. W. Savige, Australian Army Medical Corps, to be Adjutant, Australian Army Medical Corps, Training Depôt, *vice* Captain D. H. Bodycomb, M.C., 12th July, 1919.

Captain C. H. Smith-Hozier, Australian Army Medical Corps, having resigned, his appointment in the Australian Imperial Force is terminated in England, 21st July, 1919.

Captain (temporary Major) H. Sutton, Australian Army Medical Corps, to officiate as Deputy Assistant Director Medical Services, Australian and New Zealand Mounted Division, and to retain the temporary rank of Major whilst so employed, *vice* Hercus, 27th April, 1919.

Fourth Military District.

Captain G. S. Shipway, Australian Army Medical Corps, to be temporary Major, 7th May, 1919.

Fifth Military District.

Lieutenant-Colonel W. C. Sawers, D.S.O., Australian Army Medical Corps, having resigned, his appointment in the Australian Imperial Force is terminated in England, 23rd July, 1919.

Sixth Military District.

Lieutenant-Colonel R. D. Campbell, D.S.O., Australian Army Medical Corps, having resigned, his appointment in the Australian Imperial Force is terminated in England, 4th August, 1919.

Australian Naval and Military Expeditionary Forces.

The appointment of Captain P. W. Rice has been terminated. Dated 1st September, 1919.

Australian Military Forces.

The following appointments, promotions, etc., are notified:—

First Military District.

Australian Army Medical Corps—

Captain (Honorary Lieutenant-Colonel) G. W. Macartney, D.S.O., to be transferred to the Reserve of Officers, 1st October, 1919.

Captain (Honorary Major) N. M. A. Alexander, Australian Army Medical Corps, 2nd Military District, to be granted the temporary rank and pay of Lieutenant-Colonel whilst holding the appointment of Officer Commanding No. 17 Australian General Hospital 11th August, 1919.

Australian Army Medical Corps Reserve—

The date of transfer of Captain and Brevet-Major (Honorary Lieutenant-Colonel) J. R. M. Beith from the Australian Army Medical Corps, 2nd Military District, which appeared in Executive Minute No. 639/1919, promulgated in *Commonwealth of Australia Gazette* No. 110, dated 18th September, 1919, is amended to read 16th July, 1919.

Second Military District.

Australian Army Medical Corps—

Captain (Honorary Major) H. C. E. Donovan to relinquish the temporary rank of Major, 30th September, 1919, and to be transferred to the Unattached List, 1st October, 1919.

Honorary Major E. H. Rutledge to be transferred from the Reserve of Officers and to be Captain (Honorary Major), 4th August, 1919.

The resignations of Captains W. E. Harris and W. S. Brooks of their provisional appointments are accepted, 30th September, 1919.

Australian Army Medical Corps Reserve—

Leon Dallas Mercer to be Honorary Captain, 4th February, 1919.

The resignation of Honorary Captain H. G. Phippen of his commission is accepted, 30th September, 1919.

Third Military District.

Australian Army Medical Corps Reserve—

Cletus McShane and George Norman Lorimer to be Honorary Captains, 27th February, 1915.

David Ernest Trumpy to be Honorary Captain, 1st August, 1919.

Honorary Captain D. E. Trumpy is granted the temporary rank and pay of Major whilst holding the appointment of Officer Commanding No. 6 Australian General Hospital, 1st Military District, 1st August, 1919.

The resignation of Honorary Captain D. M. Austin of his commission is accepted, 30th September, 1919.

The date of appointment of Wilberforce Stephen Newton to be Honorary Captain, which appeared in Executive Minute No. 507/1919, promulgated in *Commonwealth of Australia Gazette*, No. 92, dated 24th July, 1919, is amended to read 14th April, 1915.

Medico-Legal.

BARIUM POISONING.

The City Coroner of Sydney held an inquiry on October 17, 1919, into the cause of the death of Cosmo Neels, who died in the Sydney Hospital on October 3, 1919.

George Neels, a brother of the deceased, stated that Cosmo Neels was 33 years of age and was single. He was a strong, healthy man of temperate habits. He come to Sydney about September 1, 1919, and consulted a doctor. He entered the Sydney Hospital on September 29, 1919. Witness received a telegram from him, informing him that he had to undergo an operation. He saw his brother at 7.30 p.m. on October 3, 1919. When he went into the ward, his brother stated that he was poisoned. Witness replied that he could not be poisoned. His brother made reference to other cases of poisoning in the Hospital. Witness did his utmost to disabuse his mind of anything of that nature. He saw Dr. Stokes and told him what deceased had said about being poisoned. Dr. Stokes caused the packet to be produced and said: "It couldn't be; it is Burroughs & Wellcome's." Dr. Stokes told him that several others had had it at the same time and that they were all well. Witness asked whether all the patients had received their dose from the one receptacle. He inferred from the reply that all the patients had had individual doses. The conversation took place at about 7.45 p.m.. He remained with his brother until he died. He thought that he had seen Dr. Stokes two or three times that night. His brother had told him that he had a pain in the pit of his stomach and a very depressing feeling. Later he had complained of a very bad pain in his right breast. He was vomiting a lot, but after the severe pain the vomiting ceased. He lost the use of first his left and then his right arm. In reply to Mr. H. L. Primrose, who was acting on behalf of the relatives, witness stated that his brother had told him that he had taken the dose at eight o'clock in the morning, that he felt "squeamish" at 10 and that he began to vomit at 10.30.

William Michael Doherty, Second Government Analyst, produced a certificate of the result of the analysis of the sample of powder supplied to him. A small cardboard box carrying a label of Burroughs, Wellcome & Company's Pure Barium Sulphate had been handed to him. On the top of the box was written: "Henry Hughes; for barium meal, barii sulph. ℥ iii." The contents of the box were a slightly yellowish, tinted power, which weighed approximately one ounce (450 grains). The power was composed as follows:—

Insoluble barium sulphate	63.6%
Soluble barium sulphite	24.1%
Barium carbonate (by difference)	12.3%
	100.0%

Witness stated that barium sulphate proportionately contained a quantity of barium sulphite. He had not analysed Burroughs, Wellcome's barium sulphate. Barium sulphate put up for medicinal purposes should not contain barium sulphite. He had examined the preparation of another firm since this case occurred and found that it was pure barium sulphate. Barium sulphate was insoluble in the human system, but barium sulphite was soluble in the gastric juices. He remembered the Slater case. He did not know what the analysis was in that case. The analysis in the present case was quite different to that in McGinn's case. He knew nothing of the Slater case. In the two cases (witness was probably referring to the McGinn case and the Neels case), the analysis was similar. He considered it possible that the mixture similar to Slater's and McGinn's case could be mixed with some of the contents of this box and that would cause the difference in the analysis. He had noticed that there were some white particles in the powder. This led him to the belief that the preparation was a mixture. Sulphite on exposure to the atmosphere, might become sulphate by oxidation. He had come to that conclusion because the powder in the box was in a paper and, on removing the paper, the contents of the bottom were pure white. There were about 20 grains of pure white powder in the bottom of the box and that would be pure sulphate.

Dr. Stretford Sheldon stated that he had made an internal examination on October 5, 1919, of the dead body of a man identified as Cosmo Neels. He was a strong, well-developed man. He could detect nothing abnormal in any of his organs. The contents of the abdomen were examined very carefully, in the endeavour to account for the symptoms he had had for so long a time. The only thing he noted was a very sharp bend in the early part of the small intestine. It was quite possible that this bend caused him a good deal of colic. The stomach and its contents and part of the intestine and its contents were removed and kept for analysis. The contents were a dirty, brownish, semi-fluid mass. He understood that the specimen was found to contain barium sulphite. He had no doubt that that was the cause of death. Barium carbonate would be poisonous like barium sulphite. The poisonous characters of both salts depended upon their solubility in the gastric juice. Although pronounced diarrhœa and vomiting occurred in these cases, no indications of these symptoms were discovered in the intestine. Barium sulphite seemed to act through the blood on the nerve centres. The same condition as in this case was seen in Slater's case. Deceased had been dead about 48 hours when he examined the body. The effect of the sulphite would be noticed in about an hour, but it would depend on how long it took to be absorbed. The symptoms would be pronounced in eight hours. Witness stated that he did not detect any signs of appendicitis.

Dr. Walter Perry, the Medical Superintendent, stated that since the death of Slater, they had used Burroughs, Wellcome & Company's barium sulphate and, more recently, a preparation of Brady & Company, of Chicago. No analyses had been made of the former, in view of the fact that Burroughs, Wellcome & Company guarantee it for X-ray purposes. The preparation was put up in quantities of three ounces for a single meal. Witness had found the firm absolutely reliable in their supplies. He had been told that the remains in the box after the dose had been given to the deceased, containd a mixture of sulphite and sulphate. Witness said that he had thought that the sulphate was Burroughs & Wellcome's, but, after hearing the statement, he would say that the box must have been refilled. The supply from Brady & Company was not analysed. Dr. Edwards, of the Hospital, had recommended this preparation. He had had it analysed and had used it extensively.

The barium sulphate was kept in the Hospital dispensary. It was usually sent to the wards made up in doses and, if it were not used, it would be returned. The Burroughs, Wellcome preparation would be sent in an original and unopened packet. Opened packets were never issued from the dispensary. It was a rule of the hospital that all unused medicines and powders must be returned to the dispensary after the death or discharge of the patient. He thought the writing on the box in court was Mr. Thomson's. The patient, Hughes, had been admitted on November 2, 1918. Barium sulphate was ordered on November 6, 1918, but it was not given. The records did not show what had been done with the sulphate issued for this patient. It had been dispensed and sent to the ward. The box contained about six desertspoonfuls and, if two had been taken, there would be sufficient left for a dose. The box was about three quarters full when it was handed to witness after the death of Cosmo Neels. The contents weighed 1 oz., 1 dr.. Witness knew that sulphite became sulphate on exposure to the atmosphere.

Witness was unable to say whether the preparation given to Slater was the same as that sent up for Hughes. They had accounted for all the sulphate they had in November. A young girl had had some at that time, but she got all right. Another girl was very ill, another man had some, but they had stopped him taking it. Assuming the dose was put up in that box for Hughes, it was apparently sent out two days before Slater's death. It was about that time that the

supply from Burroughs, Wellcome & Company was used up. This supply was bought on July 1, while the supply from the Drug Company was bought on July 2. Witness remembered that the preparation issued to Slater was in a previously-used Burroughs, Wellcome box. It was supplied by the dispensary to the X-ray Department in bulk and was placed in old boxes in the Department. The preparation would not leave the dispensary in a Burroughs, Wellcome box, unless it were Burroughs, Wellcome's preparation.

Witness stated that the sisters who had been in charge of "S" ward were responsible for the packet being in that ward in an open state. Apparently the box in question had not been returned to the dispensary. If poison were contained in the receptacle, the receptacle would be labelled "poison." They did not use barium sulphite in the Hospital.

After a girl named Florrie Stafford had been ill, witness had a conversation with the dispenser and took charge of all the sulphate there. It was sealed up and placed in his room. He did not know at that time that any had been taken out and not used, except the stock held in the X-ray Department. As far as he was aware, the preparation of the Australian Drug Company was not used until November 8. He could not account for the presence of the packet in question in "S" ward.

He had no record of an issue of a "barium meal" to deceased, although they usually kept a record of the meals mixed. He had been told that the dose was in a medicine cupboard in "S" ward. He did not consider that the dose should have been given to deceased without authority from a medical man or the dispenser. He did not think that an analysis should be made of the sulphate when it came in boxes from a reputable firm like Burroughs, Wellcome & Company.

Sister Margaret Emily Ocock said that she was known at the Sydney Hospital as Sister Nixon. Deceased was a patient in "H" ward on September 29, 1919, and was admitted and prepared for X-ray examination under Dr. Aspinall. There was an "X-ray ticket" written by Dr. Rivett, stating that deceased was to be given an X-ray meal at 8 a.m. on October 3. The order was sent to the X-ray Department and instructions were received that the meal was to be given at 8 a.m. and that the patient was to be sent to the X-ray Department at 2.30 p.m. The meal was to have been prepared by witness or one of the nurses. They usually got the meals from the dispensary. As she had omitted to get the meal on the previous day and as the dispensary was not open till 9 a.m., she went to "S" ward and asked Nurse Matthews if there was any bismuth for X-ray work. She received an open box containing a white powder. She gave the meal to deceased at 8.10 a.m. Dr. Aspinall came to see the patient about noon, when he was vomiting. This was not unusual. He said that he felt all right. He went to the X-ray Department at 2.30 p.m.. At 5 p.m. he appeared to be ill. Witness went off duty at 5.20 p.m.. She was told that the patient died at 10 p.m..

She had heard of the Slater and McGinn cases. She made no enquiry concerning the powder in "S" ward. She had no reason to suspect that it was not right. Nurse Matthews had not told her how long the packet had been in the ward. She saw the name Henry Hughes on the box, but had not asked when Hughes had had it. She knew of no written rule that unused powders or medicines had to be returned.

Nurse Matthews stated that Sister Nixon had asked for barium sulphate at 8 a.m. on October 3 and that she had given a cardboard box similar to the one in court. About one third of its contents appeared to have been lost. The name Henry Hughes was written on the box. She had no knowledge how the box got into the medicine cupboard. She had noticed it in the cupboard three weeks before. She remembered some trouble concerning a patient named Slater. She knew that he had died of sulphite poisoning. She had no reason to suspect that the contents of this packet were not sulphate. She had not been told that unused medicine should be returned to the dispensary, nor had she seen a rule to this effect.

Alexander Thomson, first assistant in the dispensary, stated that the writing on the box was his. He had supplied the box for Henry Hughes on November 6. It was an original packet taken from the shelf. He was positive that he had not filled that box with any other powder. He remembered Slater's death. At that time they had the brand that had been given to him and that of Burroughs, Wellcome & Company. They had none of Burroughs, Wellcome's preparation when Slater's dose was required. When a packet was taken away from the dispensary, they did not see it again. He could not tell how many sources of supply there were at the time when the powder was sent up for Hughes. The bad supply was in the Hospital on November 8, 1918, and was available for use in the dispensary. They would have had to empty the container to put the bad supply in for Hughes. He had never seen an empty case refilled. He did not account for 12 oz. of sulphite to Dr. Perry after Slater's death. He had known of no instance when an open packet of Burroughs, Wellcome & Company's barium sulphate had left the dispensary. He had no record of any order for a meal for deceased.

Dr. E. A. Stokes, the Assistant Medical Superintendent, said that he saw deceased at noon on October 3, with Dr. Aspinall. He knew that he had had a barium sulphate meal at 8 o'clock in the morning. The patient complained of a little vomiting, but his condition was good. At about 6 p.m. he regarded his condition as serious; the vomiting continued. He had been vomiting slightly since 10 a.m.. This might be a sign of poisoning. Witness had a suspicion that something was wrong at 5.30 or 6 p.m.. He found out where the barium sulphate had come from at 8 p.m.. He had no idea how the packet got into a ward, as it was against the rules for an open packet to be left in a ward. Between 5.30 and 6 p.m. he ordered the patient's stomach to be washed out and a bowel irrigation to be given. His condition was not different from that of other patients who had taken barium sulphate until late in the evening. Deceased had complained that he felt cold at 3.30 p.m.. He sat by a fire and was afterwards put to bed. The patient was under investigation concerning the cause of abdominal pains. There was no appendicitis.

The Coroner found that Cosmo Neels had died from the effects of a certain poison called barium sulphite carbonate, accidentally administered to him in place of barium sulphate. He stated incidentally that, had the regulations been observed, this death would not have occurred. The Hospital authorities should take steps to insure that nothing at all dangerous was left in the wards. There should be a thorough cleaning up at the Hospital.

The following have been nominated for election as members of the New South Wales Branch of the British Medical Association:—

Clive Reginald Alexander, Esq., M.B., Ch.M., 1918 (Univ. Sydney), Bundarra.

Eric Pitty Barbour, Esq., M.B., 1915 (Univ. Sydney), Dorrigo.

Edward Albert Woodward, Esq., M.B., Ch.M., 1917 (Univ. Sydney), University Club, Castlereagh Street, Sydney.

CONFERENCES ON RADIOLOGY AND ELECTRO-THERAPY.

We have been asked to announce that the biennial conferences on radiology and electro-therapeutics which have been interrupted during the course of the war, have been resumed in Paris. These conferences are under the auspices of *La Société des Medécins Chefs des Laboratoires de Radiologie et d'Électro-Radiothérapie des Hôpitaux de Paris.* The first conference was planned for November 3, 1919, and the sessions were to be held at *L'Hôtel Dieu.* The programme covers a period of four weeks and traverses the whole field of medical electricity, radiology, radium therapy, helio-therapy, etc.. In addition to a large number of lectures on the theoretical aspects of the subjects, practical demonstrations were arranged to be held in the various laboratories connected with the Parisian hospitals. The undertaking is recognized by the public health authority (*L'Administration Générale de l'Assistance publique à Paris*). There is no fee attached to attendance at these conferences. Medical practitioners wishing to avail themselves of the advantages of this organization, should send their names to M. le Docteur Delherm, Hôpital de la Pitié; Boulevard de l'Hôpital, 83, Paris (XIIIe.).

It has been announced that the Minister for Defence has appointed a committee to investigate the special suitability of a particular site at Randwick, in the neighbourhood of Sydney, for the treatment of discharged Australian Imperial Force men suffering from advanced tubercular infection. Two of the members of the committee were nominated by the New South Wales Branch of the British Medical Association, *viz.*: Dr. C. Bickerton Blackburn, O.B.E., and Dr. S. A. Smith, while the third, Dr. W. Summons, was nominated by the Victorian Branch of the British Medical Association.

The result of the election of ten members of the Senate of the University of Sydney was announced on November 10, 1919. It is with much gratification that we note that the four medical candidates have secured seats. Dr. C. Purser was re-elected with 1,309 votes, while Dr. Constance D'Arcy secured 1,145, Dr. G. H. Abbott 1,132 and Dr. C. Bickerton Blackburn, O.B.E., 1,014. Sir William Cullen, the Chief Justice of New South Wales, secured the maximum number of votes, namely, 1,677.

The appointments are announced of Dr. J. H. Anderson as Lecturer in Anatomy, and of Mr. F. L. Apperly as Lecturer in Pathology in the University of Melbourne.

Obituary.

NORMAN JAMES GERRARD.

The very promising career of Dr. Norman J. Gerrard was terminated suddenly by one of those inscrutable acts of Providence, which from time to time overawe and mystify all thinking persons.

Norman James Gerrard was born in Melbourne in 1883. His primary education in the State school was completed by his acquisition of a Government scholarship, the advantages of which he elected to take at South Melbourne College. In the year 1901 he entered on his medical course at the University of Melbourne and graduated as M.B., B.S. in 1905.

Shortly after qualifying, Dr. Gerrard successfully sought the position of resident medical officer to the Perth Public Hospital, and the writer has before him abundant evidence of the very high opinion in which Gerrard was held by his seniors on the staff of that Institution. After a term of mixed hospital and private practice at Davyhurst, Western Australia, Norman James Gerrard indulged his keen desire for post-graduate study; this he entered upon with characteristic energy and enthusiasm, and as a result of his efforts he was admitted to the Fellowship of the Royal College of Surgeons, Edinburgh. Before his return to Australia he took opportunity to engage in a special course of obstetrics at the Rotunda Hospital, Dublin.

In August, 1913, Norman James Gerrard took up the duties of Senior Resident Medical Officer to the Ballaarat Hospital, a position he held for two years. During this time his energies were consistently directed towards the advancement of the hospital in general efficiency, and if he could be said to have fostered one phase of the institution's activities more than another, it was that embracing the training of the nurses.

His spheres of private practice included Dunolly, where he served an assistantship; Elsternwick, a two years' "war locum," and eventually Casterton, where he purchased the practice of the late Dr. F. De Ravin. Although he was destined to practice in this district for two years only, in that period he gained a large circle of friends and, by virtue of his professional attainments, became an extremely busy man. As Honorary Surgeon to the Casterton Hospital, he found scope for his undoubted surgical ability and his capacity in this respect will probably never be fully appreciated, owing to his untimely decease.

Norman James Gerrard volunteered for active service, but was not given the opportunity of serving overseas. He may be said to have died "in harness," as he performed a major operation within thirty-six hours of his death. On reaching his home after this operation, he complained of a sore throat, which developed as a hyper-acute tonsillitis. After the lapse of twenty-four hours dyspnœa became urgent, indeed desperate, and help being not available, he made a plucky attempt to save his own life by means of a tracheotomy incision. Thus he passed away on September 27, 1919. His widow, the youngest daughter of the Honourable A. Bell, M.L.C., of Ballaarat, and an infant son survive him.

Norman James Gerrard was devoted to his work and regarded successful results as his highest reward. He took great pains to familiarize himself with progress in his profession, particularly in that branch of it to which he was especially dedicated—surgery. He combined tact, common sense and kindness with professional knowledge, thereby winning the regard and confidence of his patients. In his judgement of others he was always charitable and his invariable brightness made him a delightful companion, a good husband and devoted father. His altogether useful life was prematurely lost to his family in the tragic circumstances above indicated.

Correspondence.

REMUNERATION FOR VACCINATION.

Sir,—I write to draw attention to the very inadequate remuneration paid by the Government to their public vaccinators; the matter seems to have escaped attention, but like the lodge-rates question, once it is looked into, it becomes manifestly open to discussion.

What has to be done for each case of vaccination with calf lymph? The lymph has to be got and taken care of; hours have to be set apart for this special purpose which cannot be got through in less than a quarter of an hour, owing to the multiplicity of garments and strings requiring to be undone and done up again. Through the general and increasing unpopularity of the practice of vaccination, much time frequently has to be lost in persuading the unwilling parent to suffer it to be done at all and constant appeals have to be listened to begging for fewer places to be inoculated than the prescribed number. From the same cause diminishing numbers apply now, many preferring to pay the fine rather than have it done, hence less income from this source. If successful then two certificates have to be made out and disposed of and a record must be kept for claiming payment, when a lengthy documentary account must be rendered.

If all goes well no thanks are gained, nor is there any incentive to good work being done, since there is no inspection of the arms afterwards on the part of the Government; but if a child gets a "bad" arm, woe be to the vaccinator! for till this child's dying day will the mother and friends denounce the unfortunate doctor as a monster of iniquity. At last, after everything has been complied with and the account passed, the public vaccinator gets his miserable pittance of 2s. 6d. per case, which in these days is utterly inadequate payment for the work done. I expect my wealthy confrères to scorn the foregoing remarks as ranky, bald commercialism, and would point to the sublimity of the underlying motive of protecting the population against a possible loathsome disease by this simple procedure; if so, I must plead that it is necessary to have the means to pay one's debts and to do that it is incumbent that adequate payment should be made for one's services and in this instance I maintain that it is not the case and for remedy would suggest that meetings be convened in the large centres and resolutions carried asking for a higher remuneration and these forwarded to the right quarter by a deputation as soon as possible. Living, as I do, in the country, I can only (by your favour) thus express my opinions, trusting that ere long better terms may be obtained for what is, in many instances, a disagreeable duty, nevertheless conscientiously performed.

Yours, etc.,
O. PENFOLD, M.R.C.S., L.S.A.,
Public Vaccinator.

Bendigo, Victoria.
October 29, 1919.

THE TREATMENT OF PULMONARY ŒDEMA.

Sir,—The report of a second case of pulmonary œdema in your last issue and the apparently hopeless view taken as to its treatment induces me to draw attention to the value of belladonna in these cases. As far as I know, none of the text-books mention it in this connexion; but, remembering its physiological action, one would judge it of service. I was led to adopt it by reading Dr. L. Gwillim Davies's recommendation of it in the *British Medical Journal*, July 30, 1910. Dr. Davies used the glycerinated tincture of belladonna in a 13 dl. dose hypodermically and gave a second dose of 1 ml. half an hour after. During the late influenza epidemic I have used atropine hypodermically and have had every reason to be satisfied with its effect, hence this note.

Yours, etc.,

JAS. BOOTH.

92 Collins Street, Melbourne,
November 1, 1919.

Medical Appointments.

Dr. F. J. Blaxland (B.M.A.) has been appointed Honorary Ophthalmic Surgeon to the Rookwood State Hospital and Asylum, at Lidcombe, New South Wales.

The appointment of Dr. H. Raymond Smith as Junior Resident Medical Officer at the Perth Public Hospital is announced.

During the absence on leave of Dr. William E. Jones (B.M.A.), Dr. C. G. Godfrey (B.M.A.) has been appointed Acting Inspector-General of the Insane for Victoria.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser," page xxi.

Ballara District Hospital, Queensland: Medical Officer.

Medical Appointments.

IMPORTANT NOTICE.

Medical practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429 Strand, London, W.C.

Branch.	APPOINTMENTS.
VICTORIA. (Hon. Sec., Medical Society Hall, East Melbourne.)	All Friendly Society Lodges, Institutes, Medical Dispensaries and other Contract Practice. Australian Prudential Association Proprietary, Limited. Mutual National Provident Club. National Provident Association.
QUEENSLAND. (Hon. Sec., B.M.A. Building, Adelaide Street, Brisbane.)	Australian Natives' Association. Brisbane United Friendly Society Institute. Cloncurry Hospital.
TASMANIA. (Hon. Sec., Macquarie Street, Hobart.)	Medical Officers in all State-aided Hospitals in Tasmania.
SOUTH AUSTRALIA. (Hon. Sec., 3 North Terrace, Adelaide.)	Contract Practice Appointments at Renmark. Contract Practice Appointments in South Australia.
WESTERN AUSTRALIA. (Hon. Sec., 6 Bank of New South Wales Chambers, St. George's Terrace, Perth.	All Contract Practice Appointments in Western Australia.
NEW SOUTH WALES. (Hon. Sec., 30-34 Elizabeth Street, Sydney.)	Australian Natives' Association. Balmain United Friendly Societies' Dispensary. Canterbury United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Friendly Society Lodges at Lithgow. Friendly Society Lodges at Parramatta, Auburn and Lidcombe. Leichhardt and Petersham Dispensary. Manchester Unity Oddfellows' Medical Institute, Elizabeth Street, Sydney. Marrickville United Friendly Societies' Dispensary. Newcastle Collieries—Killingworth, Seaham Nos. 1 and 2, West Wallsend. North Sydney United Friendly Societies. People's Prudential Benefit Society. Phœnix Mutual Provident Society..
NEW ZEALAND: WELLINGTON DIVISION. (Hon. Sec., Wellington.)	Friendly Society Lodges, Wellington, New Zealand.

Diary for the Month.

Nov. 18—Tas. Branch, B.M.A., Branch and Council.
Nov. 18—N.S.W. Branch, B.M.A., Executive and Finance Committee; Illawarra Suburbs Med. Assoc. (Annual).
Nov. 19—W. Aust. Branch, B.M.A., Branch and Council.
Nov. 25.—N.S.W. Branch, B.M.A., Medical Politics Committee; Organization and Science Committee.
Nov. 25.—Vic Branch, B.M.A., ballot paper issued for election of office-bearers of Branch.
Nov. 26.—Vic. Branch, B.M.A., Council.
Nov. 27.—S. Aust. Branch, B.M.A..
Nov. 28.—Q. Branch, B.M.A., Council.
Nov. 28.—N.S.W. Branch, B.M.A..
Dec. 2.—N.S.W. Branch, B.M.A., Ethics Committee.
Dec. 2.—Tas. Branch, B.M.A., Branch and Council.
Dec. 2.—Ballot papers returned to Victorian Branch for election of office-bearers of Branch.
Dec. 3.—Vic. Branch, B.M.A., Annual General Meeting; announcement of election of office-bearers.
Dec. 5.—Q. Branch, B.M.A..
Dec. 9.—N.S.W. Branch, B.M.A., Executive and Finance Committee.

EDITORIAL NOTICES.

Manuscripts forwarded to the office of this journal cannot under any circumstances be returned.

Original articles forwarded for publication are understood to be offered to *The Medical Journal of Australia* alone, unless the contrary be stated.

All communications should be addressed to "The Editor," *The Medical Journal of Australia*, B.M.A. Building, 30-34 Elizabeth Street, Sydney.